



सत्यमेव जयते

सितंबर, 2021 मासिक मार्केट मॉनिटरिंग रिपोर्ट

Monthly Market Monitoring Report

September, 2021



भारत सरकार/ Government of India

विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

आर. ए. प्रभाग/ Regulatory Affairs Division

मार्केट मॉनिटरिंग सेल /Market Monitoring Cell

दिनांक: 11.01.2021

TABLE OF CONTENTS

S.N.	Title	Page
1.	Day Ahead Market (DAM)	4
2.	Summary of the Market in the Power Exchanges	4
3.	Term Ahead Market (TAM)	6
4.	Real Time Market (RTM)	8
5.	Green Term Ahead Market(GTAM)	9
6.	Bilateral Transactions	17
7.	Analysis of movement of prices observed in DAM Transactions in September, 2021	18
8.	Analysis of Movement of prices observed in RTM Transactions in September, 2021	21

TABLES

1.	Table: 1A	Daily MCP of IEX and PXIL in DAM for September, 2021 vs August, 2021	5
2.	Table: 1B	Daily MCP of IEX and PXIL in DAM for September, 2021 vs September, 2020	5
3.	Table: 2A	ACP of IEX and PXIL in DAM for September, 2021 vs August, 2021	5
4.	Table: 2B	ACP of IEX and PXIL in DAM for September, 2021 vs September, 2020	6
5.	Table: 3A	FSV of IEX and PXIL in DAM for September, 2021 vs August, 2021	6
6.	Table: 3B	FSV of IEX and PXIL in DAM for September, 2021 vs September, 2020	6
7.	Table: 4A	Volume transacted in TAM in PXs for September, 2021 vs August, 2021 (on trade date basis)	7
8.	Table: 4B	Volume transacted in TAM in PXs for September, 2021 vs September, 2020 (on trade date basis)	7
9.	Table: 4C	FSV of IEX and PXIL in TAM for September, 2021 vs August, 2021 (on delivery date basis)	8
10.	Table: 4D	FSV of IEX and PXIL in TAM for September, 2021 vs September, 2020 (on delivery date basis)	8
11.	Table: 5A	FSV of IEX and PXIL in RTM for September, 2021 vs August, 2021 and September, 2020	9
12.	Table: 5B	Daily MCP of IEX and PXIL in RTM for September, 2021 vs August, 2021 and September, 2020	9
13.	Table: 5C	ACP of IEX and PXIL in RTM for September, 2021 vs August, 2021 and September, 2020	9
14.	Table: 6A	FSV of IEX and PXIL in Solar Segment of GTAM for September, 2021 vs August, 2021 (on Trade date basis)	10
15.	Table: 6B	Daily MCP of IEX and PXIL in Solar Segment of GTAM for September, 2021 vs August, 2021 (on trade date basis)	11
16.	Table: 6C	FSV of IEX and PXIL in Solar Segment of GTAM for September, 2021 vs August, 2021 (on delivery date basis)	12
17.	Table: 6D	Daily MCP of IEX and PXIL in Solar Segment of GTAM for September, 2021 vs August, 2021 (on delivery date basis)	13

18.	Table: 6E	FSV of IEX & PXIL in Non-Solar Segment of GTAM for September, 2021 vs August, 2021 (on trade date basis)	14
19.	Table: 6F	Daily MCP of IEX & PXIL in Non-Solar Segment of GTAM for September, 2021 vs August, 2021 (on trade date basis)	15
20.	Table: 6G	FSV of IEX & PXIL in Non-Solar Segment of GTAM for September, 2021 vs August, 2021 (on delivery date basis)	16
21.	Table: 6H	Daily MCP of IEX & PXIL in Non-Solar Segment of GTAM for September, 2021 vs August, 2021 (on delivery date basis)	17
22.	Table: 7A	Total volume in Bilateral transaction for September, 2021	17
23.	Table: 7B	Region wise volume in Bilateral transaction for September, 2021	17

FIGURES

1.	Figure: 1	Comparison of volume of electricity transacted through both PXs together in DAM and Bilateral buy (Direct and through Traders)	18
2.	Figure: 2	Comparison of Total Purchase, Sell bids along with FSV and Daily MCP in DAM	19
3.	Figure: 3	Comparison of Maximum, Minimum, Daily, Evening Time MCP (Rs/kWh) in DAM	19
4.	Figure: 4	MCP duration curve for 2880 Time Blocks in September, 2021 in DAM	19
5.	Figure: 5	Daily MCP duration curve for the period 1 st April, 2021 to 30 th September, 2021 in DAM	20
6.	Figure: 6	Comparison of Total Purchase, Sell bids along with FSV and Daily MCP in RTM	22
7.	Figure: 7	Comparison of Maximum, Minimum, Daily, Evening Time MCP (Rs/kWh) in RTM	22
8.	Figure: 8	MCP duration curve for 2880 Time Blocks in September, 2021 in RTM	22
9.	Figure: 9	Daily MCP duration curve for the period 1 st April, 2021 to 30 th September, 2021 in RTM	23

ANNEXURES

1.	Annexure I	FSV and Average MCP in DAM for the months April, 2021 to March, 2022	25
2.	Annexure II	FSV in TAM for the months April, 2021 to March, 2022 (on delivery and trade date basis)	26
3.	Annexure-III	Top Five Entity (Buyers and Sellers) in Bilateral transactions in September, 2021	27
4.	Annexure-IV	All MCPs vis: Evening MCP, Day MCP, Night MCP, Morning MCP, Maximum MCP, Minimum MCP, Average MCP and Final Schedule Volume (MU) in DAM in September, 2021	28
5.	Annexure-V	Comparison of MCP w.r.t. Purchase Bid for 2880 Time Blocks during the month of September, 2021 in DAM	29
6.	Annexure-VI	Max. FSV, Min FSV, Max MCP and Min MCP w.r.t. all Time blocks in DAM in September, 2021	30
7.	Annexure-VII	Sellers and Purchasers of Electricity in DAM in September, 2021	31

8.	Annexure-VIII	All MCPs vis: Evening MCP, Day MCP, Night MCP, Morning MCP, Maximum MCP, Minimum MCP, Average MCP and Final Schedule Volume (MU) in RTM in September, 2021	33
9.	Annexure-IX	Comparison of MCP w.r.t. Purchase Bid for 2880 Time Blocks during the month of September, 2021 in RTM	34
10.	Annexure-X	Max. FSV, Min FSV, Max MCP and Min MCP w.r.t. all Time blocks in September, 2021 in RTM	35
11.	Annexure-XI	Sellers and Purchasers of Electricity in RTM in September, 2021	36
12.	Annexure-XII	Cross Border Transactions of Electricity with Nepal in DAM in IEX in September, 2021	39

APPENDIX

1.	Appendix-I	Definitions/ Terminologies used in the Report	40
-----------	-------------------	---	-----------

REPORT FOR MONTH: SEPTEMBER, 2021

OVERVIEW OF ELECTRICITY TRANSACTIONS ON POWER EXCHANGES IN INDIA

1. DAY AHEAD MARKET (DAM)

- 1.1. The total volume of electricity transacted on both the power exchanges, viz., IEX and PXIL in the Day Ahead Market (DAM) in the month of September, 2021 was **6,419.54 MU**. The total energy supplied in the country during the month of September, 2021 was 1,12,435 MU. Thus, the volume of electricity transacted on both the power exchanges in DAM during September, 2021 was 5.71 % of the total energy supplied in the country. The total volume of electricity transacted in DAM on both the power exchanges during August, 2021 was **6,653.88 MU** which was 5.20% of the total energy supplied [1,27,881 MU] in the country during August, 2021. Similarly, the total volume of electricity transacted in DAM on both the power exchanges during September, 2020 was **4,841.19 MU** which was 4.31 % of the total energy supplied [1,12,241 MU] in the country during September, 2020.
- 1.2. The volume of electricity transacted on IEX and PXIL during September, 2021 were **6,418.27 MU and 1.27 MU**, respectively, which means that the total volume transacted on IEX was **99.92%** of the total volume on power exchanges. The volume of electricity transacted on IEX and PXIL during August, 2021 were **6,648.76 MU and 5.12 MU**, respectively, which means that the total volume transacted on IEX was **99.92 %** of the total volume on power exchanges. Also, the volume of electricity transacted on IEX and PXIL during September, 2020, were **4,780.99 MU and 60.20 MU** respectively.
- 1.3. There was **no** Cross Border Transactions of Electricity happened in DAM in IEX during September, 2021, whereas, the same was **3.49 MU (purchase only)** with Nepal in DAM in IEX during August, 2021.
- 1.4. The Average Market Clearing Price (MCP) on IEX during the month of September, 2021 was **Rs 4.40/kWh**, which shows a decrease of **13.04%** and an increase of **80.77%** when compared with average MCP's for the month of August, 2021 and September, 2020, which were **Rs 5.06/kWh and Rs 2.69/kWh**, respectively. On PXIL, the average MCP during the month of September, 2021 was **Rs 6.52/kWh**, which shows an increase of **38.14%** and an increase of **132.86 %** when compared with average MCP's for the month of August, 2021 and September, 2020, which were **Rs 4.72/kWh and Rs 2.80/kWh** respectively.

2. SUMMARY OF THE MARKET CLEARING PRICE, AREA CLEARING PRICE AND FINAL SCHEDULED VOLUME IN THE POWER EXCHANGES

- 2.1. A comparison of the Minimum, Maximum and Average of Daily MCP during the month of September, 2021 with that of August, 2021 and September, 2020 is given in Table- 1A & 1B:

(a) September, 2021 vis- a -vis August, 2021

Daily MCP (Rs/kWh)	IEX			PXIL		
	September, 2021	August, 2021	% Change	September, 2021	August, 2021	% Change
Minimum	2.35	1.90	23.68	5.00	2.88	73.61
Maximum	7.04	9.81	-28.24	8.09	8.16	-0.86
Average	4.40	5.06	-13.04	6.52	4.72	38.14

Table: 1A**(b) September, 2021 vis- a –vis September, 2020**

Daily MCP (Rs/kWh)	IEX			PXIL		
	September, 2021	September, 2020	% Change	September, 2021	September, 2020	% Change
Minimum	2.35	2.46	-4.47	5.00	2.48	101.61
Maximum	7.04	3.15	123.49	8.09	3.38	139.35
Average	4.40	2.69	63.57	6.52	2.80	132.86

Table: 1B

2.2. The maximum Area Clearing Price (ACP) of **Rs 20.00/kWh** in IEX was observed in all 13 regions during the time block **19:00-19:15 Hrs** on 25th September, 2021. As there was no congestion in transmission system, the MCP for this time-block was also **Rs 20.00/kWh**. However, the Daily MCP in IEX on pan India basis on 25th September, 2021 was **Rs 5.87/kWh**. Whereas, in PXIL, the maximum ACP of **Rs 15.90/kWh** was observed in all 13 regions during the time blocks **19:00-19:15 Hrs** to **19:15-19:30 Hrs** on 23rd September, 2021. As there was no congestion in transmission system, the MCP for above time blocks were also **Rs 15.90/kWh**. However, the Daily MCP in PXIL on 23rd September, 2021 was **Rs 6.86/kWh**.

2.3. The minimum ACP of **Rs 1.50/kWh** in IEX was observed in all 13 regions during the 4 consecutive time blocks from **12:30-12:45 Hrs** to **01:15-01:30 Hrs** on 5th September, 2021. As there was no congestion in transmission system, the MCP for these time-blocks were also **Rs 1.50/kWh** on 05th September, 2021. However, the Daily MCP in IEX on pan India basis on 01st September, 2021 was **Rs 3.20/kWh**. Whereas, in PXIL, the minimum ACP of **Rs 3.33/kWh** was observed in all 13 regions during the time period from **6:00-07:00 Hrs** on 29th September, 2021. As no congestion was there in transmission system, the MCP for the above time period was also **Rs 3.33/kWh**. Moreover, the Daily MCP in PXIL on 29th September, 2021 was **Rs 5.55/kWh**.

2.4. A comparison of the Minimum and Maximum Area Clearing Price (ACP) during the months of September, 2021 with that of August, 2021 and September, 2020 is given in Table-2A&2B:

(a) September, 2021 vis- a -vis August, 2021

ACP (Rs/kWh)	IEX			PXIL		
	September, 2021	August, 2021	% Change	September, 2021	August, 2021	% Change
Minimum	1.50	1.10	36.36	3.33	2.41	38.17
Maximum	20.00	20.00	0.00	15.90	8.99	76.86

Table: 2A

(b) September, 2021 vis- a- vis September, 2020

ACP (Rs/kWh)	IEX			PXIL		
	September, 2021	September, 2020	% Change	September, 2021	September , 2020	% Change
Minimum	1.50	21.77	-15.25	3.33	1.04	220.19
Maximum	20.00	5.44	267.65	15.90	6.00	165.00

Table: 2B

2.5. A comparison of the Minimum, Maximum and Average of Final Scheduled Volume (FSV) of electricity transactions happened on IEX and PXIL for a day during the months of September, 2021 with that of August, 2021 and September, 2020 is given in Table-3A & 3B:

(a) September, 2021 vis- a- vis August, 2021

Final Scheduled Volume (MU)	IEX			PXIL		
	September, 2021	August, 2021	% Change	September, 2021	August, 2021	% Change
Minimum	154.11	114.52	34.57	0.03	0.02	50.00
Maximum	294.18	296.64	-0.83	0.38	1.00	-62.00
Average	213.94	214.48	-0.25	0.21	0.37	-43.24

Table: 3A**(b) September, 2021 vis- a- vis September, 2020**

Final Scheduled Volume (MU)	IEX			PXIL		
	September, 2021	September, 2020	% Change	September, 2021	September, 2020	% Change
Minimum	154.11	125.62	22.68	0.03	0.84	-96.43
Maximum	294.18	182.60	61.11	0.38	3.94	-90.36
Average	213.94	159.37	34.24	0.21	2.01	-89.55

Table: 3B**3. TERM AHEAD MARKET (TAM)****Term Ahead Market (TAM) (on Trade Date Basis)**

- 3.1. The total volume of electricity transacted on both the power exchanges in Term Ahead Market in September, 2021 on trade date basis was **407.64 MU**, out of which, **198.18 MU** (48.62 %) was transacted on IEX and **209.46 MU** (51.38 %) was transacted on PXIL.
- 3.2. The total volume of electricity transacted on both the power exchanges in Term Ahead Market on trade date basis in August, 2021 was **767.71 MU**, out of which, **483.31 MU** (62.95 %) was transacted on IEX and **284.40 MU** (37.05 %) was transacted on PXIL.
- 3.3. Similarly, total volume of electricity transacted during September, 2020 in Term Ahead Market on trade date basis in both the power exchanges was **608.72 MU**, out of which, **98.30 MU** (46.90 %) was transacted on IEX and **510.42 MU** (83.85%) was transacted on PXIL.
- 3.4. With respect to the total energy supplied during month of September, 2021 in the country, the volume of electricity traded on power exchanges in TAM on trade date basis represents **0.36 %** of the total energy supplied. The same was **0.60 %** in August, 2021 and **0.54 %** in September, 2020.

3.5. In the month of September, 2021, there was a transmission congestion in IEX of **0.06 MU** in Day Ahead Contingency Contract and **0.11 MU** in Intraday contract, whereas in PXIL, there was a transmission congestion of **13.20 MU** in Day Ahead Contingency Contract during the month of September, 2021.

3.6. The comparison of total volume of electricity transacted on both the power exchanges in Term Ahead Market (TAM) during September, 2021 with August, 2021 and September, 2020 is given in Table- 4A&4B:

(a) September, 2021 vis- a- vis August, 2021 (on trade Date Basis)

Contract Type	IEX			PXIL		
	September, 2021	August, 2021	% Change	September, 2021	August, 2021	% Change
Intra Day (MU)	0.42	8.47	-95.04	3.40	13.94	-75.61
Day Ahead Contingency(MU)	68.64	108.11	-36.51	143.90	114.48	25.70
Daily/ AnyDay (MU)	128.12	366.73	-64.79	62.16	155.98	-60.15
Weekly (MU)	-	-	NA	-	-	NA

- : No Transaction happened

NA: Not Applicable

Table: 4A

(b) September, 2021 vis- a- vis September, 2020 (on trade Date Basis)

Contract Type	IEX			PXIL		
	September, 2021	September, 2020	% Change	September, 2021	September, 2020	% Change
Intra Day (MU)	0.42	11.33	-96.29	3.40	27.05	-87.43
Day Ahead Contingency(MU)	68.64	42.09	63.08	143.90	-	NA
Daily/ AnyDay (MU)	128.12	11.28	1,044.68	62.16	483.37	-87.14
Weekly (MU)	-	33.60	NA	-	-	NA

- : No Transaction happened

NA: Not Applicable

Table: 4B

Term Ahead Market (TAM) (on delivery Date Basis)

3.7. The total volume of electricity transacted on both the power exchanges in Term Ahead Market in September, 2021 on delivery date basis was **444.04 MU**, out of which, **192.87 MU** (43.44 %) was transacted on IEX and **251.17 MU** (56.56 %) was transacted on PXIL.

3.8. The total volume of electricity transacted on both the power exchanges in Term Ahead Market on delivery date basis in August, 2021 was **855.86 MU**, out of which, **617.23 MU** (72.12 %) was transacted on IEX and **238.63 MU** (27.88 %) was transacted on PXIL.

3.9. Similarly, total volume of electricity transacted during September, 2020 in Term Ahead Market on delivery date basis in both the power exchanges was **579.08 MU**, out of which, **106.64 MU** (18.42 %) was transacted on IEX and **472.44 MU** (81.58 %) was transacted on PXIL.

3.10. With respect to the total energy supplied during the month of September, 2021 in the country, the volume of electricity traded on the power exchanges in TAM on delivery date basis

represents **0.39 %** of the total energy supplied. The same was **0.67 %** in August, 2021 and **0.52 %** in September, 2020.

3.11. In the month of September, 2021, there was real time curtailment in IEX of **23.03 MU** in Daily/Anyday Contract in Term Ahead Market, whereas in PXIL, there was no real time curtailment in Term Ahead Market during September, 2021.

3.12. The comparison of total volume of electricity transacted in both the power exchanges in Term Ahead Market (TAM) on delivery date basis during September, 2021 with August, 2021 and September, 2020 is given in Table – 4C&4D:

(a) September, 2021 vis- a- vis August, 2021 (on Delivery Date Basis)

Contract Type	IEX			PXIL		
	September, 2021	August, 2021	% Change	September, 2021	August, 2021	% Change
Intra Day (MU)	0.42	8.47	-95.04	3.40	13.94	-75.61
Day Ahead Contingency(MU)	68.36	110.10	-37.91	143.61	101.58	41.38
Daily/Any Day (MU)	124.09	498.66	-75.12	104.16	123.11	-15.39
Weekly (MU)	-	-	NA	-	-	NA

- : No transaction happened

NA: Not Applicable

Table: 4C

(b) September, 2021 vis- a- vis September, 2020 (on Delivery Date Basis)

Contract Type	IEX			PXIL		
	September, 2021	September, 2020	% Change	September, 2021	September, 2020	% Change
Intra Day (MU)	0.42	11.33	-	3.40	26.36	-87.10
Day Ahead Contingency MU)	68.36	42.39	61.26	143.61	-	NA
Daily/Any Day (MU)	124.09	38.52	222.1	104.16	446.08	-76.65
Weekly (MU)	-	14.40	NA	-	-	NA

-: No transaction happened

NA: Not Applicable

Table: 4D

4. REAL TIME MARKET (RTM)

The transaction of Electricity in Real Time Market was started from 1st June, 2020 with the approval of the CERC in both the power exchanges - IEX and PXIL. The Final Scheduled Volume (FSV), Daily Market Clearing Prices (MCP) and Area Clearing Prices (ACP) in Real Time Market during the month of September, 2021 as compared with August, 2021 and September, 2020 are as given in table 5A, 5B & 5C:

(i) Final Scheduled Volume:

Exchange	Period	Final Scheduled Volume (MU)			
		Total	Minimum	Maximum	Average
IEX	September, 2021	1842.59	40.58	88.03	61.42
	August, 2021	1859.46	40.08	98.33	59.98
	Change % (Month over Month)	-0.91	1.25	-10.47	2.40
	September, 2020	704.04	12.57	41.76	23.47
	Change % (Year over Year)	161.72	222.83	110.83	161.70
	September, 2021	-	-	-	-
	August, 2021	-	-	-	-

PXIL	Change % (Month over Month)	NA	NA	NA	NA
	September, 2020	-	-	-	-
	Change % (Year over Year)	NA	NA	NA	NA

-: No transaction happened

NA: Not Applicable

Table-5A**(ii) Daily Market Clearing Price (MCP):**

Exchange	Period	Daily MCP (Rs/kWh)		
		Minimum	Maximum	Average
IEX	September, 2021	1.66	6.89	3.84
	August, 2021	2.18	11.98	4.64
	Change % (Month over Month)	-23.85	-42.49	-17.24
	September, 2020	1.80	3.38	2.52
	Change % (Year over Year)	-7.78	103.85	52.38
PXIL	September, 2021	-	-	-
	August, 2021	-	-	-
	Change % (Month over Month)	NA	NA	NA
	September, 2020	-	-	-
	Change % (Year over Year)	NA	NA	NA

-: No transaction happened

NA: Not Applicable

Table-5B**(iii) Area Clearing Price (ACP):**

Exchange	Period	ACP (Rs/kWh)	
		Minimum	Maximum
IEX	September, 2021	0.50	20.00
	August, 2021	0.80	20.00
	Change % (Month over Month)	-37.50	0.00
	September, 2020	0.10	6.00
	Change % (Year over Year)	400.00	233.33
PXIL	September, 2021	-	-
	August, 2021	-	-
	Change % (Month over Month)	NA	NA
	September, 2020	-	-
	Change % (Year over Year)	NA	NA

-: No transaction happened

NA: Not Applicable

Table -5C**5. GREEN TERM AHEAD MARKET (GTAM):**

The transaction of electricity in Green Term Ahead Market was started in IEX w.e.f. 21st August, 2020 onwards whereas, in PXIL, GTAM (Non-Solar) was started w.e.f. 24th March, 2021 and GTAM (Solar) w.e.f. June, 2021 onwards. The total volume of electricity transacted in Solar Energy Segment in GTAM in Day Ahead Contingency, Intraday, Daily/ Anyday and Weekly contracts during September, 2021 on trade date basis and delivery date basis has been shown in Tables 6A to 6H.

5.1. Solar Energy Segment in GTAM (On Trade date basis)

The Final Scheduled Volume and the Price of electricity transacted in GTAM in IEX & PXIL during September, 2021 and its comparison with August, 2021 and September, 2020 has been shown in Table 6A & 6B below.

(i) Final Scheduled Volume:

Exch -ange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2021	229.71	1.54	15.42	7.66
		August, 2021	137.07	0.15	11.52	4.42
		%Change (Month over Month)	67.59	926.67	33.85	73.30
		September, 2020	76.28	0.24	10.08	2.54
		%Change (Year over Year)	201.14	541.67	52.98	201.57
	Intraday	September, 2021	3.37	0.03	0.65	0.11
		August, 2021	2.86	0.04	1.20	0.12
		%Change (Month over Month)	17.83	-25.00	-45.83	-8.33
		September, 2020	0.80	0.20	0.40	0.27
		%Change (Year over Year)	321.25	-85.00	62.50	-59.26
	Daily/ Anyday	September, 2021	36.12	36.12	36.12	36.12
		August, 2021	2.95	0.35	0.78	0.49
		%Change (Month over Month)	1,124.41	10,220.00	4,530.77	7,271.43
		September, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	September, 2021	5.60	2.80	2.80	2.80
		August, 2021	3.85	3.85	3.85	3.85
		%Change (Month over Month)	45.45	-27.27	-27.27	-27.27
		September, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	September, 2021	5.53	0.84	1.01	0.92
		August, 2021	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Intraday	September, 2021	-			
		August, 2021	-			
	Daily/ Anyday	September, 2021	-			
		August, 2021	-			
	Weekly	September, 2021	-			
		August, 2021	-			

-: No transaction happened

NA: Not Applicable

Table-6A

(ii) Daily Market Clearing Price (MCP):

Exchange	Solar Energy Contract	Period	Prices(Rs/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2021	3.25	4.84	3.92
		August, 2021	2.91	7.09	4.24
		%Change (Month over Month)	11.68	-31.73	-7.55
		September, 2020	3.31	3.80	3.56
		%Change (Year over Year)	-1.81	27.37	10.11

	Intraday	September, 2021	3.00	4.02	3.51
		August, 2021	3.00	4.00	3.35
		% Change (Month over Month)	0.00	0.50	4.78
		September, 2020	3.20	3.50	3.37
		% Change (Year over Year)	-6.25	14.86	4.15
	Daily/Anyday	September, 2021	4.60	4.60	4.60
		August, 2021	3.35	3.38	3.35
		% Change (Month over Month)	37.37	36.09	37.31
		September, 2020	-	-	-
		% Change (Year over Year)	NA	NA	NA
	Weekly	September, 2021	4.10	4.20	4.15
		August, 2021	3.40	3.40	3.40
		% Change (Month over Month)	20.59	23.53	22.06
		September, 2020	-	-	-
		% Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	September, 2021	3.40	5.53	3.99
		August, 2021	-	-	-
		% Change (Month over Month)	NA	NA	NA
	Intraday	September, 2021	-		
		August, 2021	-		
	Daily/ Anyday	September, 2021	-		
		August, 2021	-		
	Weekly	September, 2021	-		
		August, 2021	-		

-: No transaction happened

NA: Not Applicable

Table-6B

5.2. Solar Energy Segment in GTAM (On Delivery date basis)

The Final Scheduled Volume and the Price of electricity transacted in GTAM in IEX & PXIL during September, 2021 and its comparison with August, 2021 and September, 2020 has been shown in Table 6C & 6D below.

(i) Final Scheduled Volume:

Exch -ange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2021	230.74	1.54	15.42	7.69
		August, 2021	132.77	0.15	11.52	4.28
		% Change (Month over Month)	73.79	926.67	33.85	79.67
		September, 2020	66.47	0.24	8.33	2.22
		% Change (Year over Year)	247.13	541.67	85.11	246.40
	Intraday	September, 2021	3.37	0.03	0.65	0.11
		August, 2021	2.83	0.04	1.20	0.12
		% Change (Month over Month)	17.83	-25.00	-45.83	-8.33
		September, 2020	0.80	0.20	0.40	0.27

PXIL	Daily/ Anyday	%Change (Year over Year)	321.25	-85.00	62.50	-59.26
		September, 2021	36.12	2.52	4.08	3.61
		August, 2021	6.22	0.36	1.08	0.62
		%Change (Month over Month)	480.71	600.00	277.78	482.26
		September, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	September, 2021	5.60	0.40	0.40	0.40
		August, 2021	3.85	0.55	0.55	0.55
		%Change (Month over Month)	45.45	-27.27	-27.27	-27.27
		September, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Day Ahead Contingency	September, 2021	5.53	0.84	1.01	0.92
		August, 2021	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Intraday	September, 2021				
		August, 2021	-			
	Daily/ Anyday	September, 2021	-			
		August, 2021	-			
	Weekly	September, 2021	-			
		August, 2021	-			

-: No transaction happened

NA: Not Applicable

Table-6C

(ii) Daily Market Clearing Price (MCP):

Exchange	Solar Energy Contract	Period	Prices(Rs/kW)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2021	3.25	4.84	3.91
		August, 2021	2.63	7.09	4.20
		%Change (Month over Month)	23.57	-31.73	-6.90
		September, 2020	3.24	3.80	3.55
		%Change (Year over Year)	0.31	27.37	10.14
		September, 2021	3.00	4.02	3.51
	Intraday	August, 2021	3.00	4.00	3.35
		%Change (Month over Month)	0.00	0.50	4.78
		September, 2020	3.20	3.50	3.37
		%Change (Year over Year)	-6.25	14.86	4.15
		September, 2021	4.60	4.60	4.60
		August, 2021	3.18	3.35	3.22
	Daily/Anyday	%Change (Month over Month)	44.65	37.37	42.86
		September, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
		September, 2021	4.10	4.20	4.15
		August, 2021	3.40	3.40	3.40

PXIL		%Change (Month over Month)	20.59	23.53	22.06
		September, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Day Ahead Contingency	September, 2021	3.40	5.53	3.99
		August, 2021	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Intraday	September, 2021	-		
		August, 2021	-		
	Daily/Anyday	September, 2021	-		
		August, 2021	-		
	Weekly	September, 2021	-		
		August, 2021	-		

-: No transaction happened

NA: Not Applicable

Table-6D

5.3. Non-Solar Energy Segment in GTAM (On Trade date basis)

The total volume of electricity transacted on both the power exchanges in non-Solar Energy Segment in GTAM in Day Ahead Contingency, Intraday, Daily/ Anyday and Weekly contracts during September, 2021 on trade date basis and delivery date basis has been shown in Tables 6E to 6H.

The Final Scheduled Volume and the Price of electricity transacted in Non-Solar GTAM in IEX & PXIL during September, 2021 on trade date basis and its comparison with August, 2021 and September, 2020 has been shown in Table 6E & 6F below.

(i) Final Scheduled Volume:

Exchange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2021	205.93	0.24	12.87	6.86
		August, 2021	220.82	1.98	16.31	7.12
		%Change (Month over Month)	-6.74	-87.88	-21.09	-3.65
		September, 2020	5.78	0.20	1.13	0.73
		%Change (Year over Year)	3462.80	20.00	1038.94	839.73
		September, 2021	2.89	0.24	1.20	0.72
	Intraday	August, 2021	6.44	0.05	3.78	1.07
		%Change (Month over Month)	-55.12	380.00	-68.25	-32.71
		September, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
		September, 2021	58.51	0.96	52.25	11.70
	Daily/ Anyday	August, 2021	35.81	1.73	29.28	11.94
		%Change (Month over Month)	63.39	-44.51	78.45	-2.01
		September, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	September, 2021	0.84	0.84	0.84	0.84

		August, 2021	3.02	0.50	1.51	0.76
		%Change (Month over Month)	-72.19	68.00	-44.37	10.53
		September, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	September, 2021	50.34	0.65	2.81	1.74
		August, 2021	12.68	0.65	1.40	0.79
		% Change	297.00	0.00	100.71	120.25
	Intraday	September, 2021	-	-	-	-
		August, 2021	0.42	0.04	0.10	0.08
		% Change	NA	NA	NA	NA
	Daily/ Anyday	September, 2021	3.70	1.30	2.40	1.85
		August, 2021	19.34	0.17	4.80	1.49
		% Change	-80.87	664.71	-50.00	24.16
	Weekly	September, 2021	-			
		August, 2021	-			

-: No transaction happened

NA: Not Applicable

Table-6E

(ii) Daily Market Clearing Price (MCP):

Exchange	Non- Solar Energy Contract	Period	Prices(Rs/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2021	3.55	6.33	4.68
		August, 2021	3.39	8.57	5.29
		%Change (Month over Month)	4.72	-26.14	-11.53
		September, 2020	3.60	3.70	3.67
		%Change (Year over Year)	-1.39	71.08	27.52
	Intraday	September, 2021	4.53	5.90	5.14
		August, 2021	4.15	7.55	5.32
		%Change (Month over Month)	9.16	-21.85	-3.38
		September, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Daily/ Anyday	September, 2021	4.60	5.80	5.09
		August, 2021	4.30	5.50	4.87
		%Change (Month over Month)	6.98	5.45	4.52
		September, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	September, 2021	4.70	4.70	4.70
		August, 2021	4.00	5.00	4.40
		%Change (Month over Month)	17.50	-6.00	6.82
		September, 2020	-	-	-
		%Change	NA	NA	NA

		(Year over Year)			
PXIL	Day Ahead Contingency	September, 2021	3.79	7.65	4.89
		August, 2021	3.67	5.16	4.74
		% Change (Month over Month)	3.27	48.26	3.16
	Intraday	September, 2021	-	-	-
		August, 2021	3.42	5.25	4.05
		% Change (Month over Month)	NA	NA	NA
	Daily/ Anyday	September, 2021	4.35	4.50	4.43
		August, 2021	3.50	4.45	3.93
		% Change (Month over Month)	24.29	1.12	12.72
	Weekly	September, 2021	-		
		August, 2021	-		

-: No transaction happened

NA: Not Applicable

Table-6F

5.4. Non-Solar Energy Segment in GTAM (On Delivery date basis)

The Final Scheduled Volume and the Price of electricity transacted in GTAM in IEX & PXIL during September, 2021 and its comparison with August, 2021 and September, 2020 has been shown in Table 6G & 6H below.

(i) Final Scheduled Volume:

Exch- ange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2021	205.28	0.24	12.87	6.84
		August, 2021	226.27	1.98	16.31	7.30
		% Change (Month over Month)	-9.28	-87.88	-21.09	-6.30
		September, 2020	5.08	0.20	1.13	0.73
		% Change (Year over Year)	3940.94	20.00	1038.94	836.99
	Intraday	September, 2021	2.89	0.24	1.20	0.72
		August, 2021	6.44	0.05	3.78	1.07
		% Change (Month over Month)	-55.12	380.00	-68.25	-32.71
		September, 2020	-	-	-	-
		% Change (Year over Year)	NA	NA	NA	NA
	Daily/ Anyday	September, 2021	59.14	0.19	6.31	1.97
		August, 2021	76.80	0.07	5.59	2.95
		% Change (Month over Month)	-22.99	171.43	12.88	-33.22
		September, 2020	-	-	-	-
		% Change (Year over Year)	NA	NA	NA	NA
	Weekly	September, 2021	-	-	-	-
		August, 2021	10.44	0.07	1.03	0.36
		% Change (Month over Month)	NA	NA	NA	NA

PXIL		September, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Day Ahead Contingency	September, 2021	47.53	0.65	2.78	1.70
		August, 2021	12.68	0.65	1.40	0.79
		%Change (Month over Month)	274.84	0.00	98.57	115.19
	Intraday	September, 2021	-	-	-	-
		August, 2021	0.42	0.04	0.10	0.08
		%Change (Month over Month)	NA	NA	NA	NA
	Daily/ Anyday	September, 2021	1.30	0.14	0.14	0.14
		August, 2021	19.70	0.24	2.78	0.68
		%Change (Month over Month)	-93.40	-41.67	-94.96	-79.41
	Weekly	September, 2021	-			
		August, 2021	-			

-: No transaction happened

NA: Not Applicable

Table-6G

(ii) Daily Market Clearing Price (MCP):

Exchange	Non- Solar Energy Contract	Period	Prices(Rs/kW)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2021	3.55	6.09	4.64
		August, 2021	3.29	8.57	5.24
		%Change (Month over Month)	7.90	-28.94	-11.45
		September, 2020	3.60	3.70	3.67
		%Change (Year over Year)	-1.39	64.59	26.43
	Intraday	September, 2021	4.80	5.90	5.29
		August, 2021	4.15	7.55	5.32
		%Change (Month over Month)	15.66	-21.85	-0.56
		September, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
IEX	Daily/ Anyday	September, 2021	4.70	5.80	5.22
		August, 2021	3.88	5.50	4.37
		%Change (Month over Month)	21.13	5.45	19.45
		September, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	September, 2021	-	-	-
		August, 2021	3.65	.00	4.26
		%Change (Month over Month)	NA	NA	NA
		September, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	September, 2021	3.79	7.55	4.79
		August, 2021	3.67	5.16	4.74
		%Change (Month over Month)	3.27	46.32	1.05

	Intraday	September, 2021	-	-	-
		August, 2021	3.42	5.25	4.05
		% Change (Month over Month)	NA	NA	NA
	Daily/ Anyday	September, 2021	4.35	4.35	4.35
		August, 2021	3.50	4.45	4.12
		% Change (Month over Month)	24.29	-2.25	5.58
	Weekly	September, 2021	-		
		August, 2021	-		

-: No transaction happened

NA: Not Applicable

Table-6H

6. BILATRAL TRANSACTIONS:

The total volume of electricity transacted through **Bilateral transactions** in the month of September, 2021 was **5,783.62 MU**. The total buy volume of electricity transacted in bilateral market through direct transactions and traders in the month of September, 2021 were **1,898.38 MU** and **3,885.24 MU** respectively. The details of Bilateral transactions of Electricity happened during September, 2021 have been shown in Table Below:

	Direct	Traders	Total Bilateral Transaction (MU)
Total	1,898.38	3,885.24	5,783.62
Maximum	446.17	864.07	-
Minimum	2.35	0.20	-

Table -7A

The region-wise maximum/ minimum volume of electricity transaction happened bilaterally during September, 2021 is given in table below:

(i) Region-wise Volume:

Region-wise Volume (MU)	ER		WR		NR		SR		NER	
	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader
Total	182.51	731.21	475.11	504.21	1043.49	2443.65	197.27	205.97	0.00	0.20
Maximum	92.16	428.91	182.47	230.20	446.17	864.07	139.47	181.47	0.00	0.20
Minimum	4.13	4.91	2.52	0.59	10.07	55.37	2.35	24.50	0.00	0.20

Table -7B

6.1. The **top 5 buyers** on bilateral transaction through direct transactions in the month of September, 2021 were **Punjab, Haryana, Madhya Pradesh, Uttar Pradesh, and Telangana**, which constituted **65.23 %** of the market volume. Whereas **top 5 buyers** on bilateral transaction through traders in the month of September, 2021 were **Haryana, Punjab, Delhi, Odisha and Maharsashtra**, which constituted **73.11%** of the market volume. [Annexure III]

6.2. The **top 5 sellers** on bilateral transaction through direct transactions in the month of September, 2021 were **Madhya Pradesh, DVC, RKM Power, SKS Raigarh and DB Power**, which constituted **58.27%** of the market volume. Whereas **top 5 sellers** on bilateral transaction through traders in the month of September, 2021 were **Karnataka, Himachal**

Pradesh, Raipur Energen, JPNigrie_JNSTPP and Uttarakhand, which constituted **48.77 %** of the market volume. **[Annexure III]**

6.3. Deviation Volume - The total volume of Deviation observed in the month of September, 2021 was **2,167.41 MU**.

6.4. A comparison of volume of electricity transacted through both the Power Exchanges together in DAM, TAM, RTM, GTAM (on delivery date basis) with Bilateral transactions and Deviation in the month of September, 2021 is shown in **Figure 1**:

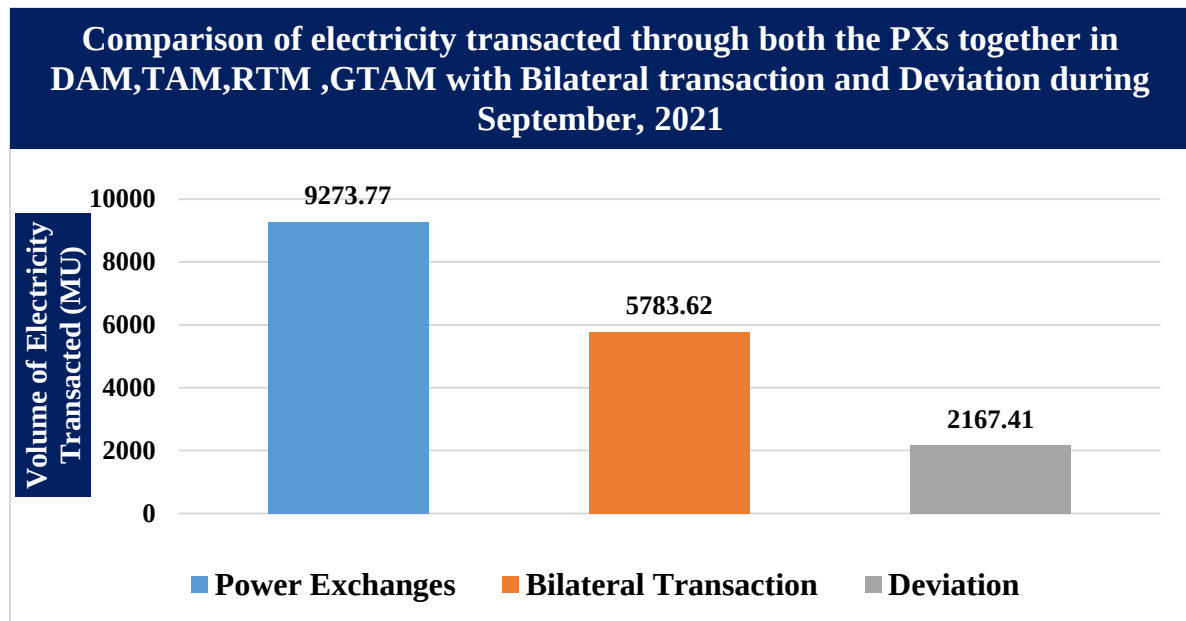


Figure -1

7. ANALYSIS OF MOVEMENT OF PRICES OBSERVED IN DAM DURING SEPTEMBER, 2021

A regression analysis has been carried out on the Day Ahead Market data taken from IEX website. Also, data was plotted in various graphs to observe patterns for each day of the September, 2021 month. The observations made are as under:

- 7.1.** In order to find out the determinants which are responsible for the Daily MCP, a regression analysis has been carried out where the Daily MCP is the dependent variable and the independent variables are peak demand, total purchase bid, total sell bid, coal generation, hydro generation, wind generation and solar generation.
- 7.2.** A double log function was used so that elasticity of Daily MCP could be read off from the coefficients of independent variables. The regression analysis revealed that the significant variables were the peak demand, the total purchase bid, total sell bid, Coal generation and wind generation whereas all the other variables were found to be insignificant. Further, the regression analysis revealed that the elasticity of the Daily MCP with respect to total purchase bid was **0.98**. In effect, the regression analysis reveals that the most important variable which determines daily market clearing price is the total purchase bid in the month of September, 2021.
- 7.3.** The same relationship is visible from the analysis carried out from the plot in **Figure 2**.

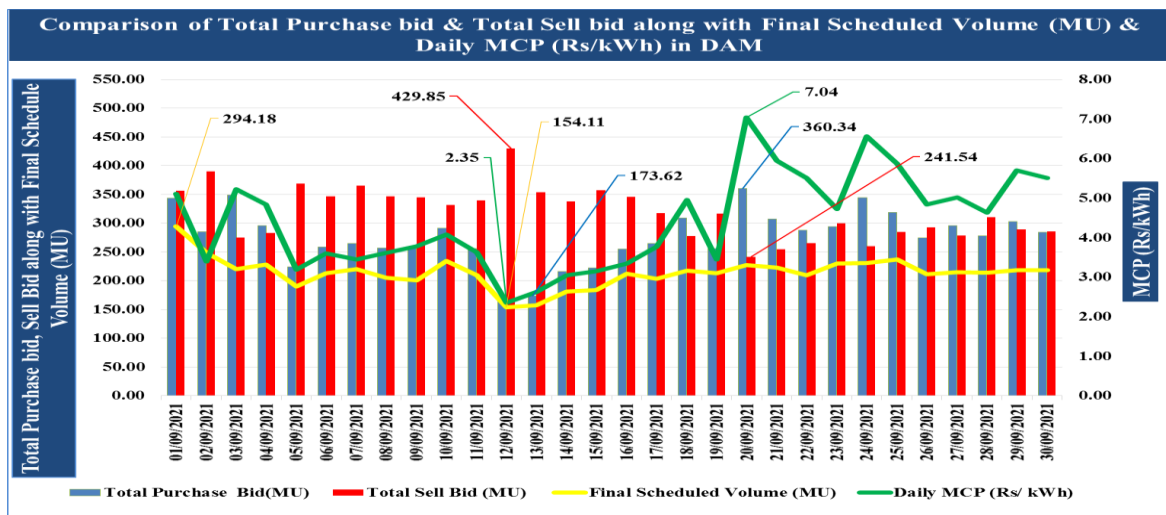


Figure -2

7.4. Invariably, the Final Scheduled Volume (MU) and the Daily MCP (Rs/kWh) showed decreasing trend on Sundays in the month of September, 2021 as the demand of electricity in the country is less compared to other days of week [Figure 2].

7.5. A comparison of maximum, minimum, daily, evening time MCP is shown in Figure -3. The same are also tabulated in Annexure-IV.

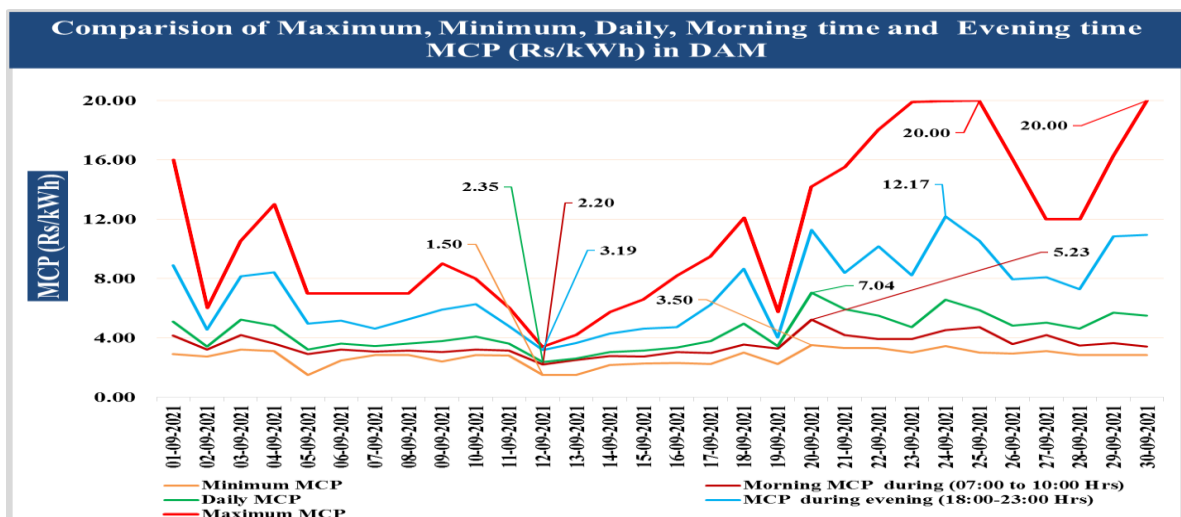


Figure -3

7.6. The Market Clearing Price duration curves for time block wise MCP for the month of September, 2021 is shown in Figure 4, whereas the day wise MCP duration curve for the period 1st April, 2021 to 30th September, 2021 is shown in Figure 5.

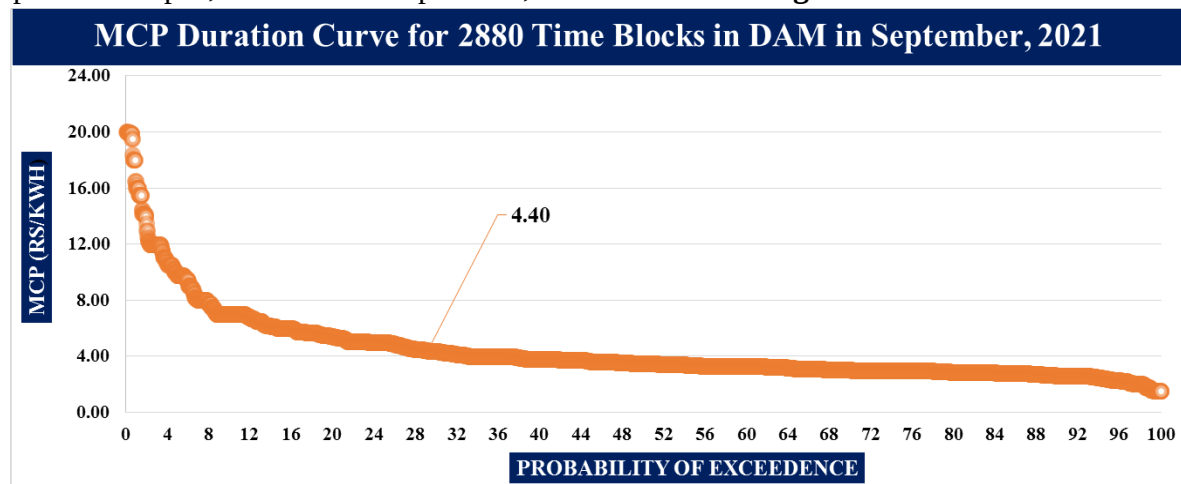


Figure-4

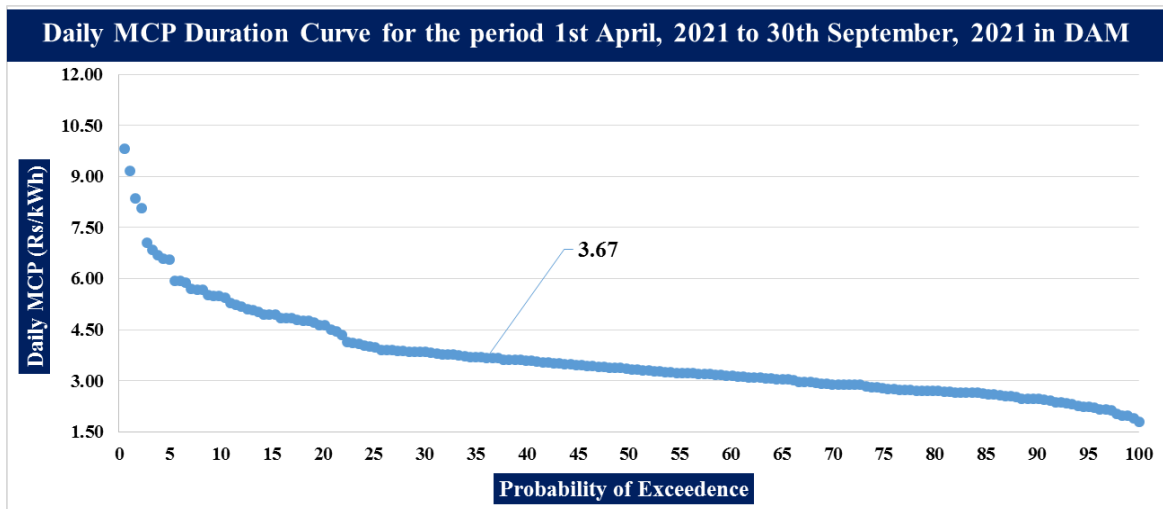


Figure-5

- 7.7. It can be seen in figure 4 above that in the MCP duration curve of September, 2021, for 29.13 % of the time MCP was above average MCP of the month (i.e. **Rs. 4.04/kWh**) and almost 70.83 % of the time MCP was below average MCP of the month. Similarly, it can be seen in the cumulative MCP duration curve from 1st April, 2021 to 30th September, 2021 (figure 5), that for 35.52 % of the time the daily MCP was above the average MCP for the period (i.e. **Rs. 3.67/kWh**) and for 63.38 % of the time the daily MCP was below the average MCP for the period.
- 7.8. The Purchase Bids and the MCP discovered in each of the 15-minute time block during the month almost followed the same trend [Annexure V]. This is also corroborated with the outcome of regression analysis mentioned at para 7.1 and 7.2 above.
- 7.9. On **13 days** during the month, the maximum FSV occurred during the **time period 06:30-07:15 Hrs.** [Annexure VI]
- 7.10. On **24 days** during the month, the maximum MCP occurred during the **time period 18:30-20:00 Hrs.** [Annexure VI]
- 7.11. On **14 days** during the month, the minimum MCP occurred during the **time period 13:00-14:00 Hrs** and **8 days** during the **time period 03:45-04:30 Hrs.** [Annexure VI]
- 7.12. On **10 days** during the month, the minimum FSV occurred during the **time period 3:15-4:45 Hrs**
- 7.13. The maximum demand met during the month of September, 2021 in the country occurred on **20th September, 2021 at 180.75 GW**, which is 7.90 % less than the maximum demand occurred during **August, 2021 [i.e. 196.25 GW on 16th August, 2021]** and is 2.37 % more than the maximum demand occurred during September, 2020 i.e. **[176.57 GW on 18th September, 2020]**.
- 7.14. In the month of September, 2021, One nation One Price was observed in IEX for **all 30 days** during the month, as there was no transmission congestion. Whereas, in PXIL also, there was no congestion in transmission system during September, 2021, so one nation one price was observed on **6 days** during which transaction of electricity happened (i.e. 21st to 23rd September, 26th September and 29th to 30th September, 2021). While in the month of August,

2021, One nation One Price was observed in IEX for **all 31 days** during the month, as there was no transmission congestion. Whereas, in PXIL also, there was no congestion in transmission system during August, 2021, so one nation one price was observed on **14 days** during which transaction of electricity happened (i.e. 03rd to 04th, 06th to 11th, 17th, 19th to 21st and 30th to 31st August, 2021). Similarly, in the month of September, 2020, there was no congestion in transmission system in IEX, hence, one nation one price was observed for all 30 days on IEX. In PXIL, there was congestion of **0.045 MU** on 05th September, 2020 in transmission system, so one nation one price was observed on 29 days in September, 2020.

- 7.15. In the month of September, 2021, there was **no** real time curtailment in IEX and PXIL. Further, there was real time curtailment of **5.13 MU** in IEX, whereas, in PXIL, there was no real time curtailment during August, 2021. In September, 2020 also, there was **no** real time curtailment in IEX and PXIL.
- 7.16. The **top 10 sellers** on the power exchanges in **Day Ahead Market (DAM)** in the month of September, 2021 were **Uttar Pradesh, Telangana, Teesta-3, Orissa, Karnataka, Himachal Pradesh, Sembcorp Gayatri, Jindal Power, JITPL and Delhi**, which constituted **66.37%** of the market volume. [Annexure VII]
- 7.17. The **top 10 purchasers** on the power exchanges in **Day Ahead Market (DAM)** in the month of September, 2021 were **Gujarat, Punjab, Andhra Pradesh, Maharashtra, Tamil Nadu, Haryana, Uttar Pradesh, Bihar, Rajasthan and Assam**, which constituted **90.32 %** of the market volume. [Annexure VII]
- 7.18. The total volume of electricity purchased by Discoms/Licensees in DAM in the month of September, 2021 was **6,362.45 MU**, which constituted **99.11 %** of total volume of electricity purchased on both the power exchanges. Whereas, the same was **6,650.37 MU** during August, 2021.
- 7.19. Similarly, the total volume of electricity sold by Discoms/Licensees in DAM in the month of September, 2021 was **6,782.83 MU**, which constituted **58.93%** of total volume of electricity purchased on both the power exchanges.

8. ANALYSIS OF MOVEMENT OF PRICES OBSERVED IN REAL TIME MARKET (RTM) TRANSACTIONS IN SEPTEMBER, 2021

- 8.1. Similar to the regression analysis carried out for Day Ahead Market, the regression analysis for Real Time Market was also done. The regression analysis revealed that the significant variables were the total purchase bid and the total sell bid, whereas all the other variables were found to be insignificant. Further, the regression analysis revealed that the elasticity of the Daily MCP with respect to total Purchase Bid was **0.70**. In effect, the regression reveals that the most important variable which determines daily market clearing price is the total purchase bid in the month of September, 2021 for RTM transactions.
- 8.2. The Purchase Bids and the MCP discovered in each of the 15-minute time block during the month almost followed the same trend [Annexure IX]. This is also corroborated with the outcome of regression analysis mentioned at **para 8.1 above**.
- 8.3. The Total Purchase Bid, Total Sell Bid, Daily MCP and FSV are shown in Figure-6 below:

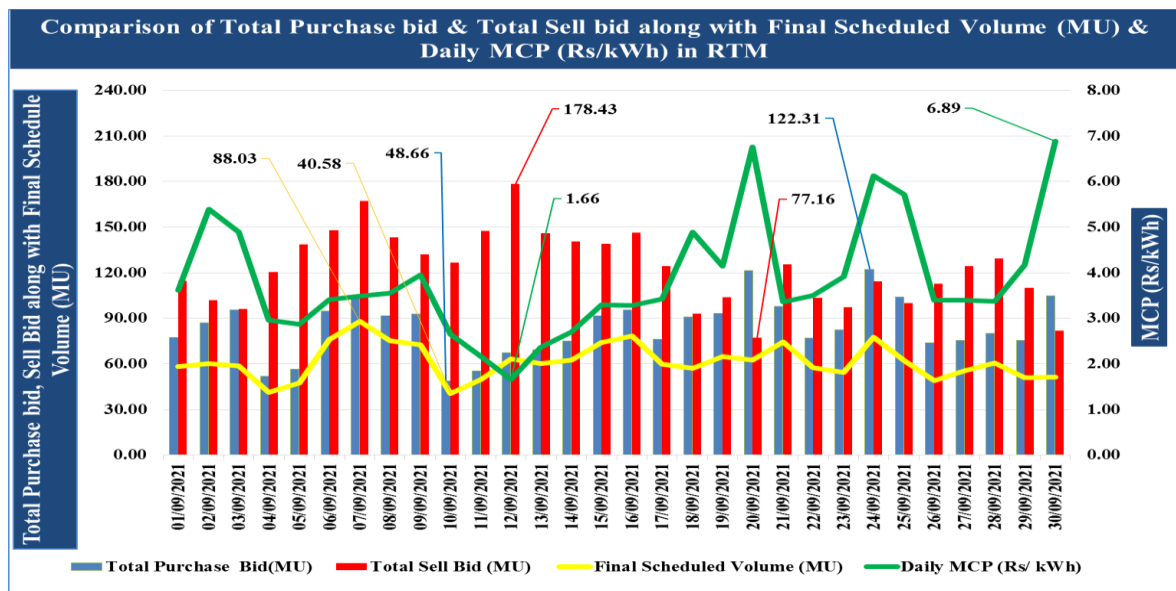


Figure-6

8.4. A comparison of maximum, minimum, daily, evening time MCP is shown in **Figure-7**. The same are also tabulated in **Annexure-VIII**.

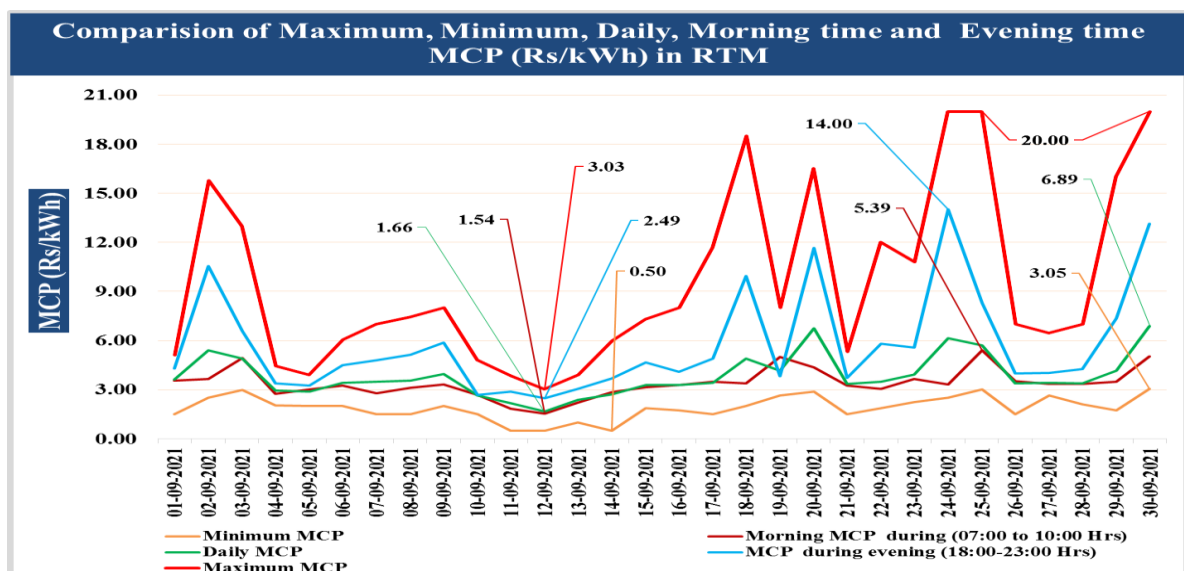


Figure-7

8.5. The Market Clearing Price duration curves for time block wise MCP for the month of September, 2021 is shown in **Figure 8**, whereas the day wise MCP duration curve for the period 1st April, 2021 to 30th September, 2021 is shown in **Figure 9**.

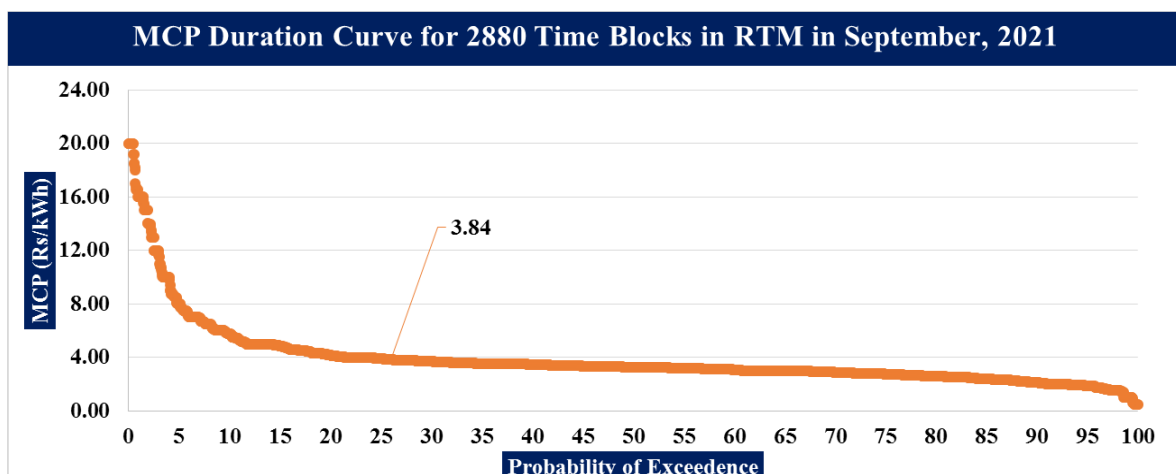


Figure-8

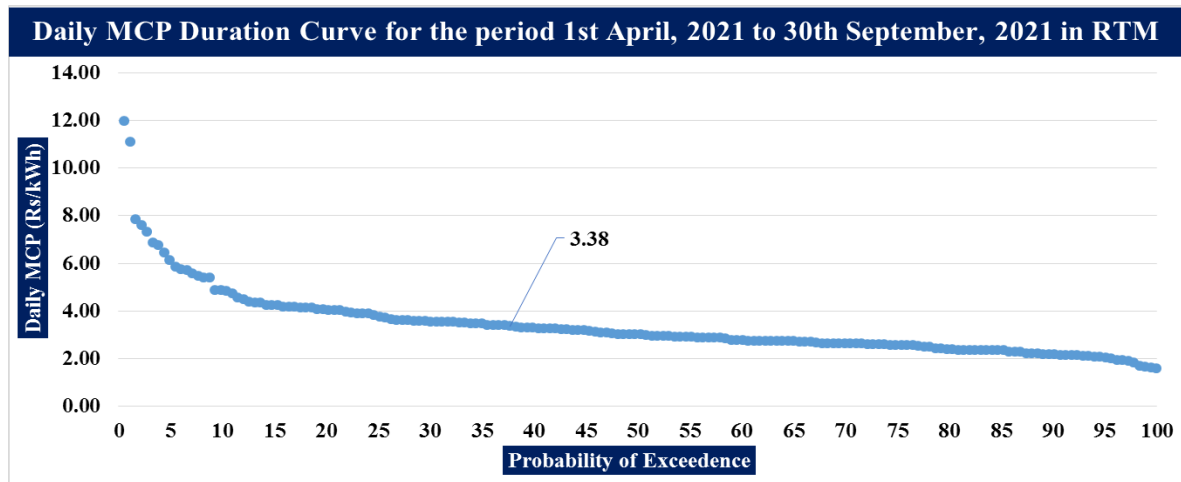


Figure-9

- 8.6. It can be seen in figure 8 above that in the MCP duration curve of September, 2021, for 25.80 % of the time the MCP was above the average MCP of the month (i.e. **Rs. 3.84/kWh**) and for 73.96 % of the time the MCP was below the average MCP of the month. Similarly, it can be seen in the cumulative MCP duration curve from 1st April, 2021 to 31st September, 2021 (figure 9) that, for 37.16 % of the time the daily MCP was above the average MCP for the period (i.e. **Rs. 3.38/kWh**) and for 62.30 % of the time the daily MCP was below the average MCP for the period.
- 8.7. On **23 days** during the month, the maximum MCP occurred during the **time period 18:45-20:15 Hrs. [Annexure X]**
- 8.8. On **16 days** during the month, the minimum FSV occurred during the **time period 12:45-14:00 Hrs. [Annexure X]**
- 8.9. There was **no** real time curtailment in IEX in Real Time Market (RTM) during September, 2021 and August, 2021, whereas, no transaction of electricity happened in PXIL during September, 2021 and August, 2021. In September, 2020, there was no real time curtailment in IEX, whereas, no transaction of electricity happened in PXIL during September, 2020 in Real Time Market (RTM).
- 8.10. In the month of September, 2021, there was transmission congestion of **2.11 MU** in IEX in Real Time Market on 10 days (1st September, 06th to 07th September, 09th September, 16th to 19th September, 21st September, and 29th September, 2021), hence, one nation one price was observed for **20 days** only in IEX during September, 2021. Whereas, in PXIL, no transaction of electricity happened in September, 2021 in Real Time Market. Further, in the month of August, 2021, there was transmission congestion of **9.35 MU** in IEX in Real Time Market for 17 days (1st to 02nd August, 10th to 21st August, 26th August, 29th August and 31st August, 2021), hence, one nation one price was observed for **14 days** only in IEX during August, 2021. Whereas, in PXIL, no transaction of electricity happened in August, 2021 in Real Time Market. In the month of September, 2020, there was congestion of **0.54 MU** in transmission system in IEX in Real Time Market on two days. Hence, one nation one price was observed for **28 days** in IEX. Whereas, in PXIL, no transaction of electricity happened in September, 2020 in Real Time Market.

- 8.11.** The **top 10 sellers** on the power exchanges in Real Time Market (RTM) in the month of September, 2021 were **Telangana, J&K, Uttar Pradesh, West Bengal, Rajasthan, Orissa, Madhya Pradesh, Himachal Pradesh, Karnataka and Delhi**, which constituted **67.06 %** of the market volume. [Annexure XI]
- 8.12.** The **top 10 purchasers** on the power exchanges in Real Time Market (RTM) in the month of September, 2021 were **Rajasthan, Andhra Pradesh, Maharashtra, Gujarat, Tamil Nadu, Haryana, Telangana, Uttar Pradesh, Madhya Pradesh and Bihar**, which constituted **79.62%** of the market volume. [Annexure XI]
- 8.13.** The total volume of electricity purchased by Discoms/ Licensees in RTM in the month of September, 2021 was **1,822.47 MU**, which constituted **98.91 %** of total volume of electricity purchased on both the power exchanges. Whereas, the same was **1,833.50 MU** during the month of August, 2021.
- 8.14.** Similarly, the total volume of electricity sold by Discoms/ Licensees in RTM in the month of September was **1,416.84 MU**, which constituted **99.30%** of total volume of electricity purchased on both the power exchanges. Whereas, the same was **1,584.85 MU** during the month of August, 2021.

-
- Source DAM, TAM and RTM data: IEX and PXIL
 - Source Entity wise sale and purchase on PXs data: NLDC
 - Source Total Energy supplied: CEA
 - Source Generation & other data for Regression: NLDC and IEX

Final Scheduled Volume, Average MCP and Real-Time Curtailment in Day Ahead Market (DAM) for the months of April, 2021 to March, 2022 of IEX and PXIL

Quarter	Months	Final Scheduled Volume (MU)		Market Clearing Price (Rs/kWh)		Real Time Curtailment (MU)	
		IEX	PXIL	IEX	PXIL	IEX	PXIL
Quarter -I	April, 2021	5,699.22	4.73	3.70	3.69	0	0
	May, 2021	4,363.88	3.32	2.83	3.06	0	0
	June, 2021	4,314.17	21.91	3.06	3.35	2.35	0
Total Quarter -I	April - June, 2021	14,377.27	29.96			2.35	0
Quarter- II	July, 2021	4,238.25	2.76	2.95	3.02	0	0
	August, 2021	6,648.76	5.12	5.06	4.72	5.13	0
	September, 2021	6,418.27	1.27	4.40	6.52	0	0
Total Quarter- II	July- September, 2021	17,305.28	9.15			5.13	0
Total April, 2021 - March, 2022		31,682.55	39.11			7.48	0

Annexure-II**Final Scheduled Volume in Term Ahead Market (TAM) for the months of April, 2021 to March, 2022 of IEX and PXIL (Trade and Delivery date basis)**

Quarter	Months	Final Scheduled Volume (MU) on Trade Date Basis		
		IEX	PXIL	Total
Quarter -I	April, 2021	325.78	651.35	977.13
	May, 2021	425.63	344.03	769.66
	June, 2021	622.42	358.74	981.16
Total Quarter -I	April- June, 2021	1,373.83	1,354.12	2,727.95
Quarter- II	July, 2021	832.44	267.10	1,099.54
	August, 2021	483.31	284.40	767.71
	September, 2021	198.18	209.46	407.64
Total Quarter -II	July- September, 2021	1,513.93	760.96	2,274.89
Total April, 2021 - March, 2022		2,887.76	2,115.08	5,002.84

Quarter	Months	Final Scheduled Volume (MU) on Delivery Date Basis		
		IEX	PXIL	Total
Quarter -I	April, 2021	348.58	576.72	925.30
	May, 2021	382.62	419.36	801.98
	June, 2021	640.91	312.66	953.57
Total Quarter -I	April- June, 2021	1,372.11	1,308.74	2,680.85
Quarter- II	July, 2021	761.26	332.72	1,093.98
	August, 2021	617.23	238.63	855.86
	September, 2021	192.87	251.17	444.04
Total Quarter -II	July- September, 2021	1,571.36	822.52	2,393.88
Total April, 2021 - March, 2022		2,943.47	2,131.26	5,074.73

Top Five Entities (Buyers and Sellers) in Bilateral transactions in the month of September, 2021

(i) Top five Buyers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
Punjab	446.17	23.50%	Haryana	864.07	22.24%
Haryana	316.91	16.69%	Punjab	809.34	20.83%
MP	182.47	9.61%	Delhi	508.15	13.08%
Uttar Pradesh	153.33	8.08%	Odisha	428.91	11.04%
Telangana	139.47	7.35%	Maharashtra	230.20	5.92%
Total Volume	1,238.35	65.23%	Total Volume	2,840.67	73.11%
Total Volume in Bilateral	1,898.38		Total Volume in Bilateral	3,885.24	

(ii) Top five Sellers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
Madhya Pradesh	572.63	28.40%	Karnataka	493.39	13.09%
DVC	221.52	10.99%	Himachal Pradesh	434.05	11.52%
RKM_POWER	139.19	6.90%	Raipur Energen	374.17	9.93%
SKS Raigarh	121.22	6.01%	JPNIGRIE_JNSTPP	300.18	7.96%
DB Power	120.19	5.96%	Uttarakhand	236.12	6.27%
Total Volume	1,174.74	58.27%	Total Volume	1,837.90	48.77%
Total Volume in Bilateral	2,016.02		Total Volume in Bilateral	3,768.74	

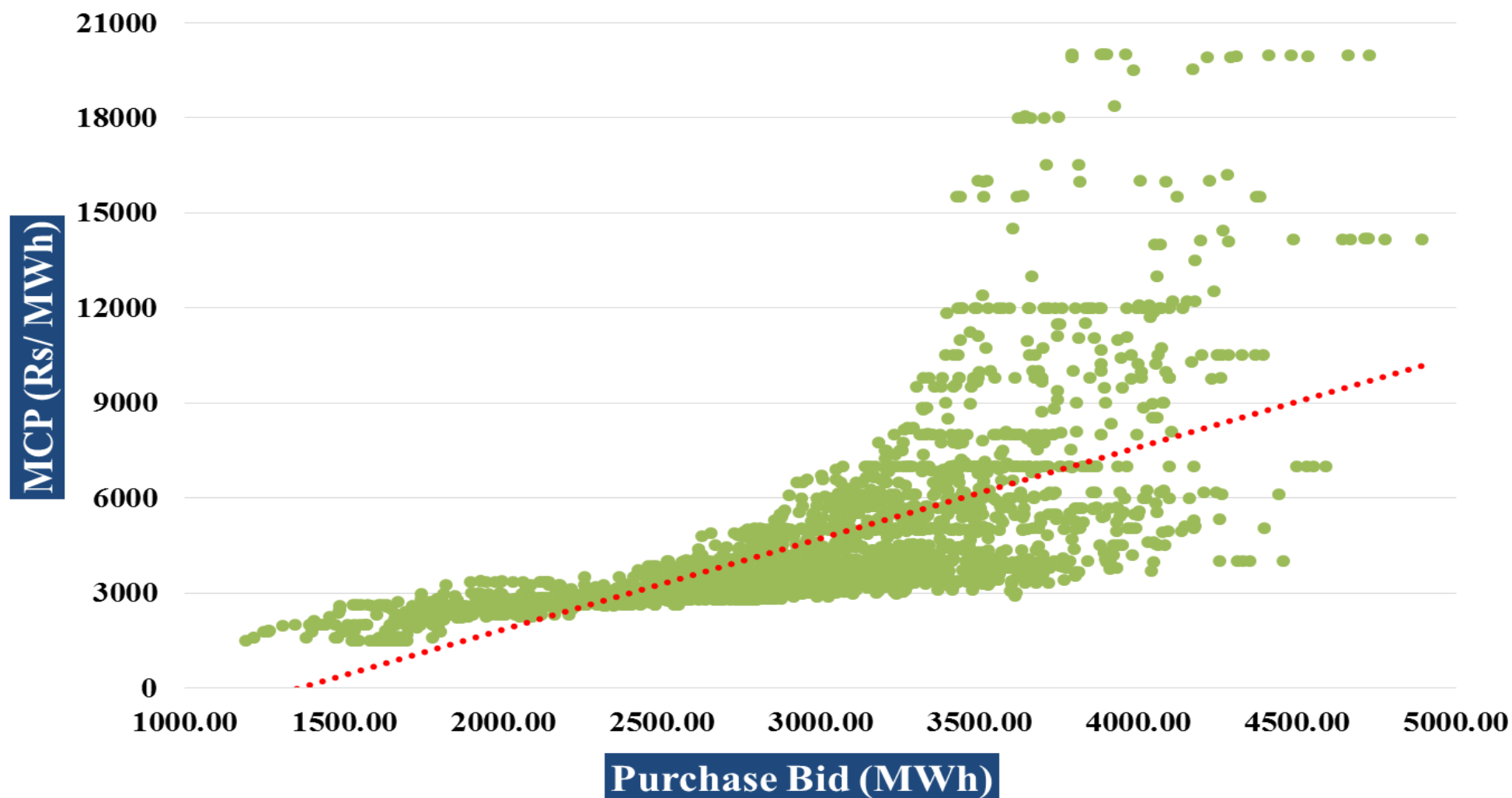
Annexure-IV**Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (Rs/kWh) and Final Scheduled Volume (MU) in DAM**

Date	Morning MCP (07:00-10:00)	Day MCP (11:00-17:00)	Evening MCP (18:00- 23:00)	Night MCP (01:00- 06:00, 23:00-24:00)	Maximum MCP	Minimum MCP	Average MCP	Final Scheduled Volume (MU)
01-09-2021	4.15	3.44	8.89	4.07	16.00	2.90	5.10	294.18
02-09-2021	3.21	2.93	4.54	2.99	6.00	2.75	3.40	248.05
03-09-2021	4.17	4.25	8.14	4.32	10.52	3.20	5.23	220.43
04-09-2021	3.60	3.44	8.43	3.87	13.00	3.10	4.84	227.71
05-09-2021	2.91	2.11	4.96	2.93	7.00	1.50	3.20	189.71
06-09-2021	3.21	3.09	5.15	3.01	7.00	2.46	3.60	213.48
07-09-2021	3.08	3.02	4.63	3.05	7.00	2.84	3.44	219.78
08-09-2021	3.13	2.90	5.26	3.21	7.00	2.84	3.62	204.68
09-09-2021	3.05	2.71	5.90	3.45	9.00	2.40	3.78	200.31
10-09-2021	3.22	2.97	6.26	3.82	8.00	2.84	4.08	234.05
11-09-2021	3.13	2.98	4.77	3.57	6.00	2.81	3.63	209.51
12-09-2021	2.20	1.75	3.19	2.33	3.39	1.50	2.35	154.11
13-09-2021	2.50	2.26	3.65	2.16	4.20	1.50	2.62	157.30
14-09-2021	2.77	2.62	4.27	2.58	5.74	2.16	3.05	181.35
15-09-2021	2.73	2.57	4.62	2.70	6.60	2.26	3.15	183.80
16-09-2021	3.03	2.66	4.71	3.03	8.21	2.31	3.34	211.98
17-09-2021	2.99	2.61	6.24	3.27	9.49	2.24	3.77	203.11
18-09-2021	3.54	3.19	8.64	4.37	12.09	3.00	4.96	217.82
19-09-2021	3.28	2.65	4.02	3.84	5.74	2.24	3.44	213.09
20-09-2021	5.23	4.67	11.29	6.81	14.19	3.50	7.04	226.91
21-09-2021	4.18	3.77	8.40	7.04	15.52	3.31	5.95	222.95
22-09-2021	3.91	3.67	10.15	4.25	18.00	3.30	5.50	209.17
23-09-2021	3.91	3.52	8.23	3.37	19.91	3.00	4.72	230.12
24-09-2021	4.52	4.33	12.17	5.14	19.98	3.44	6.56	230.88
25-09-2021	4.74	4.01	10.54	4.38	20.00	3.00	5.87	236.57
26-09-2021	3.58	3.21	7.93	4.52	16.00	2.94	4.83	211.49
27-09-2021	4.20	4.08	8.07	3.79	12.00	3.10	5.01	214.60
28-09-2021	3.49	3.87	7.28	3.79	12.00	2.85	4.64	213.82
29-09-2021	3.66	3.19	10.84	4.97	16.22	2.85	5.70	218.74
30-09-2021	3.42	3.35	10.93	4.22	20.00	2.85	5.51	218.56
Maximum	5.23	4.67	12.17	7.04	20.00	3.50	7.04	294.18
Minimum	2.20	1.75	3.19	2.16	3.39	1.50	2.35	154.11
Average	3.49	3.19	7.07	3.83	11.19	2.70	4.40	213.94

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Comparison of MCP w.r.t. Purchase Bid for 2,880 Time Blocks during the month of September, 2021 in DAM



Time Blocks during the Month [96 time blocks in a day x 30 days = 2,880]

Annexure-VI**Maximum Final Schedule Volume (FSV), Minimum FSV, Maximum Market Clearing Price (MCP) and Minimum MCP in DAM**

Date	Max. FSV (MU)		Max. MCP (Rs/kWh)		Min FSV (MU)		Min. MCP (Rs/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-09-2021	21:30 - 21:45	3.36	18:45 - 19:00	16.00	11:45 - 12:00	2.65	16:00 - 16:15	2.90
02-09-2021	07:45 - 08:00	3.17	20:45 - 21:00	6.00	03:45 - 04:00	2.19	04:00 - 04:15	2.75
03-09-2021	08:15 - 08:30	2.86	19:15 - 19:30	10.52	10:15 - 10:30	1.97	04:00 - 04:15	3.20
04-09-2021	22:45 - 23:00	2.85	19:15 - 19:30	13.00	10:15 - 10:30	1.98	04:00 - 04:15	3.10
05-09-2021	21:00 - 21:15	2.61	20:45 - 21:00	7.00	13:45 - 14:00	1.39	12:30 - 12:45	1.50
06-09-2021	21:15 - 21:30	2.87	19:45 - 20:00	7.00	04:30 - 04:45	1.83	03:45 - 04:00	2.46
07-09-2021	00:00 - 00:15	2.75	20:45 - 21:00	7.00	04:30 - 04:45	1.82	04:00 - 04:15	2.84
08-09-2021	00:00 - 00:15	2.74	20:45 - 21:00	7.00	04:00 - 04:15	1.70	13:15 - 13:30	2.84
09-09-2021	00:00 - 00:15	2.64	19:30 - 19:45	9.00	13:45 - 14:00	1.60	13:15 - 13:30	2.40
10-09-2021	06:30 - 06:45	3.25	19:15 - 19:30	8.00	13:15 - 13:30	1.98	13:15 - 13:30	2.84
11-09-2021	22:15 - 22:30	2.61	20:45 - 21:00	6.00	10:30 - 10:45	1.91	13:30 - 13:45	2.81
12-09-2021	20:45 - 21:00	1.99	18:45 - 19:00	3.39	05:00 - 05:15	1.40	13:00 - 13:15	1.50
13-09-2021	18:45 - 19:00	2.17	18:45 - 19:00	4.20	04:15 - 04:30	1.13	04:15 - 04:30	1.50
14-09-2021	07:00 - 07:15	2.69	19:45 - 20:00	5.74	03:30 - 03:45	1.35	02:45 - 03:00	2.16
15-09-2021	07:30 - 07:45	2.61	19:15 - 19:30	6.60	04:30 - 04:45	1.37	13:45 - 14:00	2.26
16-09-2021	07:00 - 07:15	3.33	19:15 - 19:30	8.21	01:45 - 02:00	1.79	13:45 - 14:00	2.31
17-09-2021	07:00 - 07:15	3.03	19:15 - 19:30	9.49	03:15 - 03:30	1.80	13:15 - 13:30	2.24
18-09-2021	07:00 - 07:15	3.36	19:15 - 19:30	12.09	23:30 - 23:45	1.92	09:00 - 09:15	3.00
19-09-2021	06:30 - 06:45	3.14	00:15 - 00:30	5.74	10:45 - 11:00	1.80	13:45 - 14:00	2.24
20-09-2021	07:00 - 07:15	3.18	19:15 - 19:30	14.19	01:00 - 01:15	1.90	13:15 - 13:30	3.50
21-09-2021	06:45 - 07:00	3.10	19:00 - 19:15	15.52	19:00 - 19:15	2.00	17:00 - 17:15	3.31
22-09-2021	06:45 - 07:00	2.72	19:15 - 19:30	18.00	13:00 - 13:15	1.84	13:15 - 13:30	3.30
23-09-2021	06:30 - 06:45	2.97	18:30 - 18:45	19.91	10:45 - 11:00	2.05	01:30 - 01:45	3.00
24-09-2021	06:30 - 06:45	3.13	19:00 - 19:15	19.98	23:45 - 24:00	1.98	13:15 - 13:30	3.44
25-09-2021	06:45 - 07:00	2.93	19:00 - 19:15	20.00	23:45 - 24:00	2.15	04:00 - 04:15	3.00
26-09-2021	17:30 - 17:45	2.74	19:15 - 19:30	16.00	02:45 - 03:00	1.84	13:15 - 13:30	2.94
27-09-2021	18:00 - 18:15	2.60	18:30 - 18:45	12.00	03:15 - 03:30	1.87	01:15 - 01:30	3.10
28-09-2021	21:45 - 22:00	2.64	18:45 - 19:00	12.00	10:00 - 10:15	1.95	04:00 - 04:15	2.85
29-09-2021	16:30 - 16:45	2.62	19:00 - 19:15	16.22	03:45 - 04:00	1.93	13:15 - 13:30	2.85
30-09-2021	06:45 - 07:00	2.75	19:00 - 19:15	20.00	13:00 - 13:15	1.79	12:30 - 12:45	2.85

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Annexure-VII**Sellers and Purchasers in Day Ahead Market (DAM) in the month of September, 2021**

S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1.	Uttar Pradesh	746.53	11.63%	Gujarat	2320.80	36.15%
2.	Telangana	658.66	10.26%	Punjab	954.35	14.87%
3.	Teesta -3	505.58	7.88%	Andhra Pradesh	661.14	10.30%
4.	Odisha	497.56	7.75%	Maharashtra	556.58	8.67%
5.	Karnataka	493.83	7.69%	Tamil Nadu	363.83	5.67%
6.	Himachal Pradesh	399.30	6.22%	Haryana	219.68	3.42%
7.	Sembcorp Gayatri	306.03	4.77%	Uttar Pradesh	203.49	3.17%
8.	Jindal Power	274.28	4.27%	Bihar	200.48	3.12%
9.	JITPL	241.20	3.76%	Rajasthan	179.76	2.80%
10.	Delhi	168.99	2.63%	Assam	137.88	2.15%
11.	West Bengal	153.47	2.39%	Madhya Pradesh	131.04	2.04%
12.	Kerala	83.96	1.31%	Telangana	93.57	1.46%
13.	Bihar	77.75	1.21%	Uttarakhand	84.67	1.32%
14.	RKM Power	74.37	1.16%	Dadra & Nagar Haveli	53.27	0.83%
15.	Madhya Pradesh	73.53	1.15%	Delhi	50.16	0.78%
16.	Essar Power MP Ltd	69.94	1.09%	ArcelorMittal Nippon	43.08	0.67%
17.	Talcher Stg-2	68.34	1.06%	Chhattisgarh	40.28	0.63%
18.	Ramagundam Stg-1	67.25	1.05%	West Bengal	27.59	0.43%
19.	Jorethang	66.28	1.03%	Daman & Diu	25.04	0.39%
20.	Raipur Energen	65.99	1.03%	Karnataka	23.77	0.37%
21.	Tashiding HEP	65.55	1.02%	BALCO 2	14.00	0.22%
22.	Singoli Bhagwati	65.10	1.01%	Kerala	11.42	0.18%
23.	Rajasthan	58.21	0.91%	Odisha	9.18	0.14%
24.	Chhattisgarh	57.98	0.90%	Himachal Pradesh	4.81	0.07%
25.	ACBIL	56.97	0.89%	Jharkhand	4.76	0.07%
26.	Kameng HEP	54.66	0.85%	Goa WR	1.66	0.03%
27.	AD Hydro	51.48	0.80%	Manipur	1.58	0.02%
28.	Dikchu	48.32	0.75%	Chandigarh	1.44	0.02%
29.	GMR Kamalanga	45.95	0.72%	Tripura	0.17	0.00%
30.	Maruti Clean Coal Power	45.88	0.71%	Meghalaya	0.02	0.00%
31.	Sainj HEP	43.21	0.67%			
32.	J&K	42.11	0.66%			
33.	Thermal Powertech	40.52	0.63%			
34.	Jindal Power Ltd. Stg-	38.05	0.59%			
35.	NTPC Kudgi	34.62	0.54%			
36.	Assam	32.59	0.51%			
37.	Shree Cement	31.08	0.48%			
38.	Chandigarh	31.06	0.48%			
39.	Karcham Wangtoo	30.89	0.48%			

40.	Arunachal Pradesh	29.92	0.47%			
41.	Jindal Steel	29.37	0.46%			
42.	Raigarh Energy Ltd.	28.19	0.44%			
43.	Goa WR	25.22	0.39%			
44.	DB Power	24.83	0.39%			
45.	Maharashtra	24.14	0.38%			
46.	MB Power	22.29	0.35%			
47.	Bongaigaon	22.20	0.35%			
48.	Jaypee Nigrie	20.56	0.32%			
49.	Ramagundam Stg-3	19.42	0.30%			
50.	Palatana	18.99	0.30%			
51.	Meghalaya	18.47	0.29%			
52.	Tamil Nadu	18.22	0.28%			
53.	Andhra Pradesh	16.78	0.26%			
54.	Jharkhand	13.03	0.20%			
55.	Simhadri Stg-2	12.45	0.19%			
56.	Mizoram	11.61	0.18%			
57.	Gujarat	11.51	0.18%			
58.	DVC	11.06	0.17%			
59.	Sikkim	10.88	0.17%			
60.	Chuzachen	10.37	0.16%			
61.	Adani Power STG2	7.61	0.12%			
62.	Tripura	7.55	0.12%			
63.	Haryana	6.77	0.11%			
64.	NLC TPS-II Stg-2	5.68	0.09%			
65.	Lanco Budhil	4.20	0.07%			
66.	Jhabua Power	4.02	0.06%			
67.	RGPPL	3.39	0.05%			
68.	NTPL	2.82	0.04%			
69.	IL&FS	2.56	0.04%			
70.	Adani Wind Energy Kutchh Five Limited	2.43	0.04%			
71.	Torrent Power	1.46	0.02%			
72.	Dhariwal	1.43	0.02%			
73.	Nagaland	0.91	0.01%			
74.	Uttarakhand	0.70	0.01%			
75.	Punjab	0.53	0.01%			
76.	Talcher	0.26	0.00%			
77.	Barh Stg-2	0.22	0.00%			
78.	Kahalgaon	0.13	0.00%			
79.	Continuum Power Trading (TN) Private	0.13	0.00%			
80.	Farakka	0.11	0.00%			
81.	Renew Solar Energy (Jharkhand Three)	0.03	0.00%			
Total Volume of top 10		4,291.96	66.86%	Total Volume of top 10	5,798.00	90.32%
Total Volume in PXs		6,419.53		Total Volume in PXs	6,419.53	

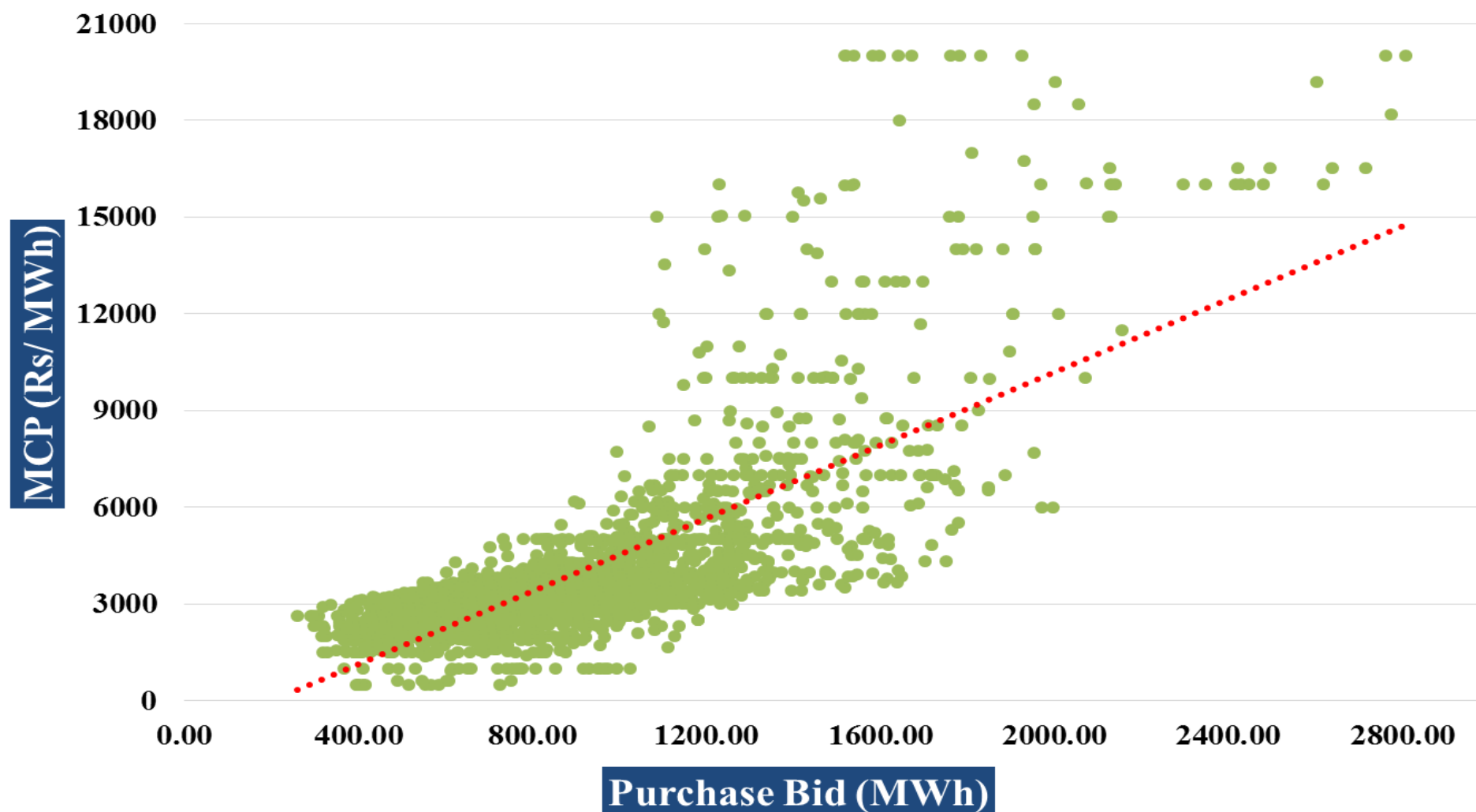
Annexure-VIII**Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (Rs/kWh) and Final Scheduled Volume (MU) in RTM**

Date	Morning MCP (07:00-10:00)	Day MCP (11:00-17:00)	Evening MCP (18:00- 23:00)	Night MCP (01:00- 06:00, 23:00-24:00)	Maximum MCP	Minimum MCP	Average MCP	Final Scheduled Volume (MU)
01-09-2021	3.56	2.96	4.30	3.70	5.10	1.50	3.61	58.04
02-09-2021	3.65	3.89	10.55	3.48	15.77	2.50	5.40	60.16
03-09-2021	4.91	3.72	6.59	4.60	13.00	2.98	4.89	58.46
04-09-2021	2.73	2.59	3.37	3.09	4.43	2.03	2.96	41.13
05-09-2021	3.02	2.42	3.24	2.89	3.91	1.99	2.86	47.34
06-09-2021	3.23	2.97	4.51	2.99	6.05	2.00	3.40	75.89
07-09-2021	2.76	2.73	4.80	3.54	7.00	1.50	3.49	88.03
08-09-2021	3.12	2.47	5.12	3.53	7.44	1.49	3.55	75.35
09-09-2021	3.30	3.03	5.88	3.56	8.00	2.00	3.94	72.33
10-09-2021	2.68	2.27	2.67	3.00	4.80	1.50	2.65	40.58
11-09-2021	1.82	1.86	2.87	2.05	3.85	0.50	2.16	49.83
12-09-2021	1.54	0.91	2.49	1.76	3.03	0.50	1.66	63.05
13-09-2021	2.20	2.17	3.05	2.09	3.90	1.00	2.37	59.96
14-09-2021	2.85	1.87	3.67	2.63	6.00	0.50	2.70	62.49
15-09-2021	3.16	2.55	4.67	2.94	7.30	1.88	3.29	73.95
16-09-2021	3.28	2.44	4.09	3.43	8.00	1.74	3.28	78.35
17-09-2021	3.48	2.62	4.90	2.92	11.67	1.50	3.42	59.85
18-09-2021	3.37	3.13	9.94	3.17	18.50	2.01	4.88	57.06
19-09-2021	5.01	3.24	3.80	4.85	8.00	2.64	4.14	64.76
20-09-2021	4.36	6.87	11.64	3.82	16.52	2.88	6.76	62.61
21-09-2021	3.26	2.78	3.72	3.66	5.30	1.49	3.35	74.45
22-09-2021	3.06	2.49	5.80	2.76	12.00	1.85	3.49	57.50
23-09-2021	3.66	3.16	5.58	3.35	10.80	2.24	3.91	54.37
24-09-2021	3.30	3.27	14.00	3.86	20.00	2.50	6.13	77.65
25-09-2021	5.39	3.35	8.29	6.04	20.00	3.00	5.71	62.22
26-09-2021	3.51	2.72	3.97	3.52	7.00	1.50	3.40	49.01
27-09-2021	3.36	3.00	4.01	3.30	6.46	2.64	3.40	55.56
28-09-2021	3.34	2.86	4.24	3.17	6.99	2.10	3.38	60.46
29-09-2021	3.49	2.79	7.34	3.20	16.00	1.74	4.16	50.91
30-09-2021	5.04	4.09	13.12	5.39	20.00	3.05	6.89	51.24
Maximum	5.39	6.87	14.00	6.04	20.00	3.05	6.89	88.03
Minimum	1.54	0.91	2.49	1.76	3.03	0.50	1.66	40.58
Average	3.38	2.91	5.74	3.41	9.56	1.89	3.84	61.42

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Comparison of MCP w.r.t. Purchase Bid for 2,880 Time Blocks during the month of September, 2021 in RTM



Time Blocks during the Month [96 time blocks in a day x 30 days = 2,880]

Maximum Final Schedule Volume (FSV), Minimum FSV, Maximum Market Clearing Price (MCP) and Minimum MCP in RTM

Date	Max. FSV (MU)		Max. MCP (Rs/kWh)		Min FSV (MU)		Min. MCP (Rs/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-09-2021	08:15-08:30	0.91	20:00-20:15	5.10	16:00-16:15	0.38	10:00-10:15	1.50
02-09-2021	01:30-01:45	0.91	19:45-20:00	15.77	10:00-10:15	0.37	04:00-04:15	2.50
03-09-2021	14:15-14:30	0.92	19:30-19:45	13.00	16:15-16:30	0.32	23:45-24:00	2.98
04-09-2021	19:15-19:30	0.72	19:15-19:30	4.43	08:15-08:30	0.25	12:15-12:30	2.03
05-09-2021	14:15-14:30	0.72	21:15-21:30	3.91	05:00-05:15	0.32	12:45-13:00	1.99
06-09-2021	22:30-22:45	1.40	20:45-21:00	6.05	09:45-10:00	0.48	13:00-13:15	2.00
07-09-2021	23:00-23:15	1.39	21:00-21:15	7.00	10:30-10:45	0.59	09:00-09:15	1.50
08-09-2021	22:30-22:45	1.21	21:30-21:45	7.44	17:45-18:00	0.36	13:00-13:15	1.49
09-09-2021	12:15-12:30	1.06	19:30-19:45	8.00	03:00-03:15	0.53	13:00-13:15	2.00
10-09-2021	14:15-14:30	0.59	00:15-00:30	4.80	08:15-08:30	0.26	10:30-10:45	1.50
11-09-2021	16:30-16:45	1.10	20:45-21:00	3.85	07:45-08:00	0.31	06:00-06:15	0.50
12-09-2021	16:30-16:45	1.03	19:00-19:15	3.03	00:15-00:30	0.41	11:30-11:45	0.50
13-09-2021	02:45-03:00	0.89	19:15-19:30	3.90	09:15-09:30	0.40	05:45-06:00	1.00
14-09-2021	00:45-01:00	1.04	19:30-19:45	6.00	13:15-13:30	0.38	13:00-13:15	0.50
15-09-2021	07:45-08:00	1.10	19:30-19:45	7.30	13:15-13:30	0.41	13:15-13:30	1.88
16-09-2021	21:30-21:45	1.27	19:15-19:30	8.00	09:45-10:00	0.47	13:15-13:30	1.74
17-09-2021	19:00-19:15	0.97	19:15-19:30	11.67	10:00-10:15	0.32	10:00-10:15	1.50
18-09-2021	21:45-22:00	1.21	19:30-19:45	18.50	11:15-11:30	0.25	13:00-13:15	2.01
19-09-2021	14:30-14:45	1.00	07:15-07:30	8.00	09:45-10:00	0.42	13:00-13:15	2.64
20-09-2021	23:15-23:30	1.09	19:30-19:45	16.52	15:30-15:45	0.41	03:15-03:30	2.88
21-09-2021	11:45-12:00	1.06	19:30-19:45	5.30	17:00-17:15	0.42	17:00-17:15	1.49
22-09-2021	21:45-22:00	1.03	19:30-19:45	12.00	13:30-13:45	0.25	12:45-13:00	1.85
23-09-2021	22:00-22:15	0.84	18:45-19:00	10.80	17:30-17:45	0.38	13:45-14:00	2.24
24-09-2021	23:30-23:45	1.27	19:00-19:15	20.00	09:45-10:00	0.44	04:00-04:15	2.50
25-09-2021	01:30-01:45	0.93	19:00-19:15	20.00	18:45-19:00	0.43	13:00-13:15	3.00
26-09-2021	19:45-20:00	0.86	19:15-19:30	7.00	09:45-10:00	0.32	13:15-13:30	1.50
27-09-2021	17:30-17:45	0.88	19:15-19:30	6.46	00:30-00:45	0.28	13:30-13:45	2.64
28-09-2021	20:00-20:15	1.01	19:30-19:45	6.99	02:00-02:15	0.35	13:30-13:45	2.10
29-09-2021	23:15-23:30	0.81	19:00-19:15	16.00	05:15-05:30	0.24	13:00-13:15	1.74
30-09-2021	23:45-24:00	0.83	19:00-19:15	20.00	18:45-19:00	0.27	02:45-03:00	3.05

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Annexure-XI**Sellers and Purchasers in Real Time Market (RTM) in the month of September, 2021**

S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1.	Telangana	211.47	11.48%	Rajasthan	265.68	14.42%
2.	J&K	186.83	10.14%	Andhra Pradesh	190.99	10.37%
3.	Uttar Pradesh	170.21	9.24%	Maharashtra	175.96	9.55%
4.	West Bengal	131.15	7.12%	Gujarat	170.01	9.23%
5.	Rajasthan	104.03	5.65%	Tamilnadu	137.62	7.47%
6.	Orissa	101.58	5.51%	Haryana	124.54	6.76%
7.	Madhya Pradesh	83.41	4.53%	Telangana	120.58	6.54%
8.	Himachal Pradesh	83.08	4.51%	Uttar Pradesh	115.90	6.29%
9.	Karnataka	82.13	4.46%	Madhya Pradesh	83.05	4.51%
10.	Delhi	81.71	4.43%	Bihar	82.73	4.49%
11.	Kameng HEP	68.81	3.73%	Delhi	66.63	3.62%
12.	NLC TPS-II Stg-2	33.17	1.80%	West Bengal	57.34	3.11%
13.	Chhattisgarh	32.65	1.77%	Punjab	43.63	2.37%
14.	NLC TPS-II	31.52	1.71%	Orissa	40.89	2.22%
15.	MB Power	31.04	1.68%	Assam	32.34	1.76%
16.	Assam	27.77	1.51%	J&K	26.08	1.42%
17.	Kerala	26.14	1.42%	Chhattisgarh	24.84	1.35%
18.	RKM Power	22.09	1.20%	Himachal Pradesh	18.23	0.99%
19.	Neyveli New Thermal	20.40	1.11%	Karnataka	11.29	0.61%
20.	Sasan UMPP	18.63	1.01%	Kerala	10.59	0.57%
21.	NLC	17.85	0.97%	BALCO 2	9.91	0.54%
22.	Bihar	17.51	0.95%	ArcelorMittal Nippon	9.14	0.50%
23.	Ramagundam Stg-1	16.19	0.88%	Jharkhand	5.60	0.30%
24.	Tripura	15.91	0.86%	Manipur	4.57	0.25%
25.	Sembcorp Gayatri	14.67	0.80%	Daman & Diu	3.57	0.19%
26.	Haryana	13.66	0.74%	DVC	3.46	0.19%
27.	Manipur	11.06	0.60%	Uttarakhand	2.31	0.13%
28.	Jharkhand	10.47	0.57%	Tripura	1.66	0.09%
29.	NTPC Kudgi	10.26	0.56%	Dadra & Nagar Haveli	1.63	0.09%
30.	NTPC Gadarwara	9.59	0.52%	Tashiding HEP	0.41	0.02%
31.	Jindal Power Ltd. Stg-	9.58	0.52%	Goa WR	0.30	0.02%
32.	Jindal Power	8.80	0.48%	Jorethang	0.30	0.02%
33.	Bongaigaon	8.54	0.46%	Sikkim	0.28	0.02%
34.	DB Power	6.92	0.38%	Maruti Clean Coal	0.18	0.01%
35.	AD Hydro	6.08	0.33%	Karcham Wangtoo	0.18	0.01%
36.	Raipur Energen	5.28	0.29%	Chandigarh	0.10	0.01%
37.	Barh Stg-2	5.13	0.28%			
38.	Khargone STPP	4.80	0.26%			
39.	Adani Power STG2	4.51	0.24%			
40.	Sainj HEP	4.23	0.23%			

41.	Mouda Stg-2	4.20	0.23%			
42.	Teesta -3	4.15	0.23%			
43.	Mouda Stg-1	4.09	0.22%			
44.	Maharashtra	4.07	0.22%			
45.	Farakka	4.06	0.22%			
46.	NTPC Sholapur	3.85	0.21%			
47.	Meghalaya	3.78	0.21%			
48.	Darlipalli	3.76	0.20%			
49.	Tamilnadu	3.56	0.19%			
50.	Ramagundam Stg-3	3.35	0.18%			
51.	DVC	3.31	0.18%			
52.	Palatana	3.29	0.18%			
53.	Simhadri Stg-2	3.27	0.18%			
54.	Thermal Powertech	3.18	0.17%			
55.	Andhra Pradesh	2.82	0.15%			
56.	Sikkim	2.79	0.15%			
57.	Punjab	2.51	0.14%			
58.	Jindal Steel	2.37	0.13%			
59.	Farakka Stg 3	2.26	0.12%			
60.	Karcham Wangtoo	2.10	0.11%			
61.	Raigarh Energy Ltd.	1.84	0.10%			
62.	Singoli Bhagwati	1.82	0.10%			
63.	Tashiding HEP	1.74	0.09%			
64.	Simhadri Stg-1	1.63	0.09%			
65.	Gujarat	1.60	0.09%			
66.	Jhabua Power	1.49	0.08%			
67.	NLC TPS-II Expn	1.46	0.08%			
68.	Tanda Stg-2	1.45	0.08%			
69.	Chandigarh	1.21	0.07%			
70.	AGTPP	1.16	0.06%			
71.	Shree Cement	0.96	0.05%			
72.	Dadri_RLNG Fuel	0.92	0.05%			
73.	Dikchu	0.85	0.05%			
74.	AGBPP	0.82	0.04%			
75.	IL&FS	0.73	0.04%			
76.	Kawas_RLNG Fuel	0.73	0.04%			
77.	GMR Kamalanga	0.69	0.04%			
78.	NTPL	0.66	0.04%			
79.	Torrent Power	0.62	0.03%			
80.	Talcher Stg-2	0.58	0.03%			
81.	Jorethang	0.55	0.03%			
82.	JITPL	0.43	0.02%			
83.	ACBIL	0.40	0.02%			
84.	RGPPPL_IR	0.36	0.02%			
85.	Lanco Budhil	0.35	0.02%			
86.	Auraiya_RLNG Fuel	0.35	0.02%			

87.	Dadri_Combined	0.32	0.02%			
88.	Arunachal Pradesh	0.32	0.02%			
89.	Maithon Power	0.25	0.01%			
90.	SKS Power	0.20	0.01%			
91.	RGPPL	0.12	0.01%			
92.	Dadra & Nagar Haveli	0.10	0.01%			
93.	Maruti Clean Coal	0.06	0.00%			
94.	Singrauli	0.05	0.00%			
95.	RGPPL_Others	0.04	0.00%			
96.	Coastal Gujrat Power	0.04	0.00%			
97.	Anta_RLNG Fuel	0.02	0.00%			
Total Volume of top 10		1,235.61	67.06%	Total Volume of top 10	1,467.05	79.62%
Total Volume in PXs		1,842.59		Total Volume in PXs	1,842.59	

Annexure-XII**Cross Border Electricity Transactions in Day Ahead Market (DAM) in IEX with Nepal During the month of September, 2021**

S. No	Delivery Date	Traded Volume (MU)
1	01-09-2021	-
2	02-09-2021	-
3	03-09-2021	-
4	04-09-2021	-
5	05-09-2021	-
6	06-09-2021	-
7	07-09-2021	-
8	08-09-2021	-
9	09-09-2021	-
10	10-09-2021	-
11	11-09-2021	-
12	12-09-2021	-
13	13-09-2021	-
14	14-09-2021	-
15	15-09-2021	-
16	16-09-2021	-
17	17-09-2021	-
18	18-09-2021	-
19	19-09-2021	-
20	20-09-2021	-
21	21-09-2021	-
22	22-09-2021	-
23	23-09-2021	-
24	24-09-2021	-
25	25-09-2021	-
26	26-09-2021	-
27	27-09-2021	-
28	28-09-2021	-
29	29-09-2021	-
30	30-09-2021	-
Total		-

:- No transaction happened.

Note: No Cross Border Transactions of Electricity happened with Nepal during September, 2021 in IEX.

Definitions/ Terminologies used in the Report

1. **Area Clearing Price (ACP)** is price discovered in each time block of concerned bid area. The country has been divided into 13 bid areas for the purpose of calculating prices in Power Exchanges.
13 Bid area are as under:
N1:Jammu and Kashmir, Himachal Pradesh, Chandigarh, Haryana; **N2:** Uttar Pradesh, Uttarakhand, Rajasthan, Delhi; **N3:** Punjab; **E1:** West Bengal, Sikkim, Bihar, Jharkhand; **E2:** Odisha; **W1:** Madhya Pradesh; **W2:** Maharashtra, Gujarat, Daman and Diu, Dadar and Nagar Haveli, North Goa; **W3:** Chhattisgarh; **S1:** Andhra Pradesh, Telangana, Karnataka, Pondicherry (Yanam), South Goa; **S2:** Tamil Nadu, Pondicherry (Puducherry), Pondicherry (Karaikal), Pondicherry (Mahe); **S3:** Kerala; **A1:** Tripura, Manipur, Mizoram, Nagaland; **A2:** Assam, Arunachal Pradesh, Meghalaya.
2. **Average MCP** is the average of daily MCP of the days during the month on which transaction happened.
3. **Bilateral Transaction** means a transaction for exchange of electrical energy (MWh) between a specified buyer and a specified seller, from a specified point of injection to a specified point of drawal for a fixed or varying quantum of power (MW) for any time block during a month.
4. **Daily MCP** is the average of MCP of all 96 Time Blocks of the day during which transaction happened.
5. **Day-Ahead Market (DAM)** on the power exchanges are market for electricity where market participants purchase and sell electricity at financially binding day-ahead prices for the following day.
6. **Elasticity** is percentage of change in MCP with respect to change in independent variable viz. peak demand, average purchase bid, average sell bid, generation from coal based plants, generation from hydro based plants, generation from wind based plants and generation from solar plants.
7. **Energy Supplied** is the total energy (MU) available at the States' periphery.
8. **Final Scheduled Volume** is the total of scheduled volume of all 96 time blocks in a day during the month in which transaction happened.
9. **Green Term Ahead Market (GTAM)** is based on the principles of current Term Ahead Market (TAM) and will offer trade through Intra-Day Contracts, Day ahead contingency Contracts, Daily Contracts and Weekly Contracts for both solar and non-Solar Renewable Energy (RE) generation. GTAM is a market-based mechanism, where RE surplus and RE deficit States can trade RE Power and balance their RPO targets.
10. **MCP** is the price discovered in each of the 15 Minute Time Block. The day is divided in 96-time blocks of 15 minutes each.
11. **Real Time Market (RTM)** on the power exchanges is the market for electricity where market participants buy/ sell electricity on a half-hourly market and would commence with the end of the right to revision of schedule or declared capability and would end with gate closure. The auction

sessions would be conducted every half an hour for the delivery of power for the duration of 30 minutes in two time blocks of 15 minutes each to commence from one hour after the closure of the RTM trading session.

12. Term Ahead Market (TAM) on the power exchanges is the market for electricity where market participants buy/sell electricity on a term basis ranging from 3 hours before actual despatch (i.e. intra-day) and up to 11 days in advance. There are 4 types of contracts in TAM, namely; Intra-day, Day Ahead Contingency, Daily and Weekly.